



Natural Resources Conservation Service In cooperation with Michigan Agricultural Experiment Station

# Soil Survey of Alger County, Michigan



## **How To Use This Soil Survey**

#### **General Soil Map**

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

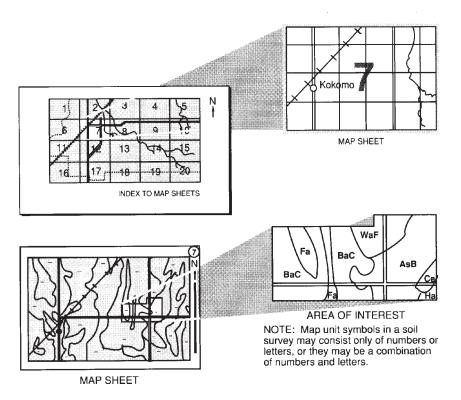
#### **Detailed Soil Maps**

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



#### National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service; the Forest Service; the Michigan Department of Agriculture; the Michigan Agricultural Experiment Station; Michigan State University, Cooperative Extension Service; and Michigan Technological University. The survey is part of the technical assistance furnished to the Alger County Soil and Water Conservation District. The Alger County Board of Commissioners provided financial assistance.

Major fieldwork for this soil survey was completed in 2002. Soil names and descriptions were approved in 2005. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2002. The most current official data are available on the Internet (http://soils.usda.gov).

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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#### **Cover Photo Caption**

Miners Castle at Pictured Rocks National Lakeshore, in an area of the Shingleton-Trout Bay-Munising, calcareous substratum, association.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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#### **Foreword**

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state\_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each map unit is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Garry Lee State Conservationist Natural Resources Conservation Service

# Soil Survey of Alger County, Michigan

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United States Department of Agriculture, Natural Resources Conservation Service and Forest Service, in cooperation with Michigan Department of Agriculture; the Michigan Agricultural Experiment Station; Michigan State University, Cooperative Extension Service; and Michigan Technological University

ALGER COUNTY is in the central part of the Upper Peninsula of Michigan (fig. 1). It is bordered by Lake Superior. It has an area of 606,887 acres, or about 947 square miles. The population of Alger County was 9,819 in 1996. The city of Munising is the county seat.

About 88 percent of the county is forested. Only about 2 percent of the county is classified as farmland. Forestry and tourism are the main economic enterprises in the county.

The soils in the survey area vary widely in texture, natural drainage, slope, and other characteristics. Because of steep slopes, droughtiness, and stoniness, many of the soils are best suited to use as forestland.

This survey updates earlier surveys of Alger County (Veatch and others, 1929; Berndt, 1967). It provides additional information and has larger maps, which show the soils in greater detail.

#### **General Nature of the Survey Area**

This section gives general information about Alger County. It describes climate, physiography, landforms, history and development, farming, industry and transportation facilities, recreation, wildlife habitat, and lakes and streams.

#### Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Munising in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 18.9 degrees F and the average daily minimum temperature is 11.2 degrees. The lowest temperature during the period of



Figure 1.—Location of Alger County in Michigan.

record, which occurred at Munising on January 19, 1994, is -27 degrees. In summer, the average temperature is 62.5 degrees and the average daily maximum temperature is 73.1 degrees. The highest temperature, which occurred at Munising on July 7, 1988, is 101 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is 36.45 inches. Of this total, 13.38 inches, or about 37 percent, usually falls in June through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall on record was 3.51 inches at Munising on May 31, 1970. Thunderstorms occur on about 29 days each year, and most occur between June and September.

The average seasonal snowfall is 146.1 inches. The greatest snow depth at any one time during the period of record is 76 inches recorded on March 9, 1972. On an average, about 65 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 13.9 inches recorded on December 12, 1961.

The average relative humidity in midafternoon is about 55 percent in May and nearly 75 percent in December. Humidity is higher at night, and the average at dawn is about 80 percent in most months and nearly 90 percent from June through September. The sun shines 60 percent of the time possible in summer and 34 percent in winter. The prevailing wind is from the northwest for most of the year, but it is from the south during most of the summer. Average windspeed is highest, around 10 miles per hour, during March and April.

#### **Physiography**

By Kenneth R. Wikgren, soil scientist, Natural Resources Conservation Service

The topography of Alger County is dominated by the bedrock-controlled shoreline of Lake Superior with cliffs, benches, beach ridges, and dunes rising rapidly 200 to 400 feet into a complex of glacial deposits, including ground moraines, recessional moraines, drumlins, disintegration moraines, outwash plains, drainage channels, ice-contact features, lacustrine deposits, and swamps. Elevation ranges from about 602 feet to more than 1,100 feet.

The bedrock of Alger County consists primarily of Cambrian and Ordovician rocks. The iron-rich igneous and metamorphic rocks to the west of Alger County were uplifted to spectacular heights over 600 million years ago during the Penokean Orogeny near the end of the Precambrian. As these mountains were eroded, stream and lake sediments were deposited that led to the formation of the Jacobsville Sandstone (fig. 2). Later, in the Cambrian and into the Ordovician, the invasion of the area by seas resulted in marine sandstone, dolomite, limestone, and shale formations (Dorr and Eschman, 1970).

The Jacobsville Sandstone occurs at the unconformity between the Precambrian and Cambrian and is generally considered to be Early and Middle Cambrian in age. The Jacobsville Sandstone consists of a succession of red to white, coarse grained to fine grained, feldspathic and quartzose sandstone with layers of shale and conglomerate. The western side of Grand Island, just north of Munising, features spectacular cliffs of Jacobsville Sandstone that exhibit beautiful red and white streaks that are the result of the oxidation, reduction, and leaching of iron.

The Late Cambrian is represented by the Munising Formation, which consists of white and light gray, dolomitic and glauconitic sandstone; red, green, and gray shale; and a basal conglomerate. Spectacular exposures of the Munising Formation can be seen in the Pictured Rocks National Lakeshore east of Munising. Chapel Rock and Miners Castle are two prominent shoreline features that display namesake members of the Munising Formation (Haddox and Dott, 1990; Hamblin, 1958).

Rocks of Ordovician age consist primarily of dolomitic sandstone, dolomite, limestone, and shale. They include the Au Train Formation, Black River Group, and Trenton Group. The Au Train Formation of Middle Ordovician age is a light brown to



Figure 2.—An exposure of Jacobsville Sandstone in an area of Buckroe-Rock outcrop complex, 6 to 25 percent slopes, very bouldery. Areas of rock outcrop can hinder the use of equipment for logging activities.

white dolomitic sandstone. The resistant Au Train Formation unconformably overlies the easily eroded Miners Castle Member of the Munising Formation and caps the Cambro-Ordovician cuesta, leading to the formation of fascinating shoreline features and numerous waterfalls, including Miners, Munising, Laughing Whitefish, and Au Train Falls.

During the Pleistocene ice age, the Upper Peninsula was repeatedly covered by glacial ice (Dorr and Eschman, 1970). The glacial landforms and deposits of the region are the result of the last major glacial stage, known as the Greatlakean. The Marquette readvance of the ice sheet occurred about 10,000 years ago and may have been the last major advance (Farrand and Drexler, 1985; Hughes, 1978). The glacial deposits range from 0 to more than 500 feet in thickness. They include till, drainage channel deposits, ice-contact stratified drift, outwash, lacustrine deposits, and eolian deposits. In some areas there is only a thin layer of basal till that closely reflects the bedrock over which the glacier passed. In other areas there may be several layers of glacial deposits representing a sequence of advances, ablation of ice, and proglacial activity.

The Marquette Lobe covered most of Alger County. The ice apparently advanced fairly rapidly over southwestern Alger County, probably due to the softer limestone and dolomite bedrock. The resulting fluted ground moraine is characterized by parallel grooves and intervening ridges along with a few scattered drumlins. The reddish brown loamy till is commonly calcareous and reflects the sandstone, dolomitic sandstone, and lake sediments over which the glacier passed as well as the underlying dolomite and limestone. The more acidic reddish brown till in the vicinity of Munising becomes more calcareous and less red to the east as the bedrock influence changes from Jacobsville Sandstone to dolomitic sandstone, dolomite, and limestone.

As the Marquette ice terminus retreated northward, recessional moraines were constructed during stillstands or during minor readvances. An example of a narrow recessional moraine can be observed where it crosses U.S. 41 about 1 mile south of Kiva (Hughes, 1971).

The wasting away of the stagnant ice margin led to the formation of complex ice wastage features characterized by kame terraces, head-of-outwash, kettles, ice-contact slope, small outwash plains, and proglacial lakes. Large areas of the ice-margin complex occur south and east of Munising. These areas have been referred to as the Munising Moraine and Newberry Moraine and were formerly interpreted as being terminal moraines (Bergquist, 1936; Leverett, 1929).

Melting of glacial ice within the Superior Basin produced huge rivers and lakes, resulting in a variety of glaciofluvial and glaciolacustrine deposits. Eskers, crevasse fillings, kame terraces, kames, and kettles are ice-contact features that occur throughout the area of ablation on the disintegration moraines and in other areas. These features consist of stratified sandy and gravelly deposits, commonly grading into proglacial outwash. The outwash plains consist of broad, relatively flat areas of sandy and gravelly deposits that in places grade into finer lacustrine sediments at the margin. Examples are the Kingston Plains and the large sand plains south of Wetmore. Large areas of these outwash plains are pitted with numerous kettle lakes and depressions.

As the ice front melted back, outlets were opened for glacial lakes Duluth and Agassiz, which resulted in catastrophic flooding. As water from these huge lakes to the west poured east, various outlet channels were cut leading to the Au Train-Whitefish channel and draining to the south. The resulting scabland topography can be observed in the area north of Sundell, Rumely, Eben, and Chatham, including Laughing Whitefish Gorge, Rock River Canyon, and Silver Creek Canyon (Drexler and others, 1983; Hughes, 1971).

As the ice terminus retreated further north, a series of lower drainage outlets was uncovered. The ice front confined a large west-to-east-draining meltwater river against ice-free land to the south. Drainage shifted from the south, along the Au Train-Whitefish channel, to the east, along the Pictured Rocks area (Drexler, 1981; Drexler and others, 1983). Meltwater carved several channels into Cambrian sandstone bedrock, including those now occupied by Chapel Creek, Mosquito River, and Beaver Basin, and shorelines in the basin receded rapidly northward, leaving the Pictured Rocks area "high and dry" about 9,500 years ago (Farrand and Drexler, 1985). This process occurred as outlet channels to the east remained at low levels due to the recent loading on the earth's crust by glacier ice.

After removal of the ice, the crust of the earth began to rebound. As the land rose, the water levels of the Great Lakes fluctuated as outlets changed. Once the outlets of the Great Lakes stabilized, around 6,000 years before present, the level of ancestral Lake Superior rose to a level roughly 40 feet higher than present (after rebound). This high lake stand has been designated as glacial Lake Nipissing (Hough, 1958; Larsen, 1987). As the level of Lake Nipissing rose, the Grand Sable Banks were destabilized and part of the glaciofluvial deposit was reworked by wind to form the Grand Sable Dunes (Anderton and Loope, 1995; Farrell and Hughes, 1985; Marsh and Marsh, 1987). During the Nipissing high stand, Chapel Rock and Miners Castle and numerous perched sea caves were carved into the Cambrian sandstone by wave action. Beaver, Chapel, Miners, Au Train, and Deer Lakes represent embayments on ancient Lake Nipissing.

Slowing of rebound, downcutting of channels through unconsolidated material, shifting of outlets to the south, and climatic change subsequently caused a lowering of Lake Superior to near its present level (Farrand and Drexler, 1985; Larsen, 1987). As erosion lowered the Lake Nipissing outlet to the modern Lake Superior level, lake currents deposited a succession of parallel beach ridges from the Nipissing level to the present beach. These closely spaced ridges, which form a "corrugated plain" (Bergquist, 1936), are evident in the vicinity of Au Sable Point, on Sand Point, and on the tombolo between Trout Bay and Murray's Bay on Grand Island.

Since much of eastern Upper Michigan is characterized by low relief and a covering of glacial drift, bedrock controls surface geomorphology in only a few places. From east to west across northern Alger County, where the veneer of drift is thin, a cuesta formed on the resistant Au Train Formation (Dorr and Eschman, 1970). This cuesta comprises the Pictured Rocks. All north-flowing streams in Alger County form waterfalls as they cross the cuesta. The falls include Miners Falls, Au Train Falls, and Laughing Whitefish Falls.

In postglacial times, erosion and deposition continued to modify the landscape. Rock surfaces were exposed as they were stripped of sediment. Smooth slopes of glacial deposits were dissected by drainageways. Shorelines were modified by waves and currents. Eroded silts and sands were deposited, dried, blown by the wind, and redeposited. Alluvial soils were deposited on flood plains, and organic deposits formed in swamps. Small, shallow lakes filled with vegetation and became bogs. In time, as vegetation began to stabilize the soil, the various ecosystems of today began to form, reflecting the physiography of Alger County.

#### Landforms

Following are descriptions of the major types of landforms in Alger County (see Landform Map).

#### **Ground Moraine (east of Trenary)**

This landform is a nearly level to rolling till plain consisting predominantly of moderately well drained and well drained, loamy soils that formed in an eolian mantle

overlying calcareous lodgment till (Shoepac and Trenary soils). There are also medium and large areas of poorly drained mineral soils and very poorly drained organic soils in the lower landscape positions and in drainageways (Ensley, Cathro, and Carbondale soils). Also included are areas of poorly drained and moderately well drained, loamy soils that are shallow and moderately deep to limestone bedrock (Ruse and Reade soils). These soils occur on structural benches within the ground moraine. The bedrock breaks the surface intermittently, particularly along creeks and rivers, such as the West Branch of the Whitefish River. This landform was deposited prior to the Marquette advance, which occurred approximately 10,000 years ago.

#### **Ground Moraine (Munising Moraine)**

This landform is east of Munising. It is a nearly level to rolling till plain consisting predominantly of moderately well drained and well drained, loamy soils that formed in an eolian mantle overlying calcareous lodgment till (Greylock soils and Munising, calcareous substratum, soils). A thin mantle of sandy outwash and/or drift overlies many areas of the loamy till (Blue Lake soils and Yalmer, calcareous substratum, soils). There are also medium and large areas of very poorly drained organic soils in depressions and drainageways (Carbondale, Lupton, and Tawas soils). Also included are well drained, loamy soils that are moderately deep to dolomite and dolomitic sandstone (Cookson soils). A small drumlin field is in the southeast part of this landform adjacent to Schoolcraft County. This landform was deposited during the Marquette advance, which occurred approximately 10,000 years ago.

#### **Fluted Ground Moraines**

This landform occurs west of Trenary and north and south of State Highway M-94. It is a nearly level to moderately sloping till plain consisting predominantly of moderately well drained and well drained, loamy soils that formed in an eolian mantle overlying calcareous lodgment till (Shoepac and Trenary soils). The paralleled grooves and ridges of this landform are generally oriented in a north-south direction. Poorly drained mineral soils and very poorly drained organic soils are in depressions and drainageways (Ensley, Cathro, and Carbondale soils). Also included are small areas of the well drained and moderately well drained Traunik and McMaster soils in drainageways. Acidic loamy till occurs in the northern parts of this landform. This landform was deposited prior to the Marquette advance, which occurred approximately 10,000 years ago.

#### **Disintegration Moraine (border of Luce County)**

This landform is a gently undulating to very steep system of moraines consisting of sandy ablation or flow till and outwash. It is characterized by a chaotic mound-and-pit topography, generally randomly oriented, with enclosed depressions. The dominant soils in the uplands are Dillingham, Kalkaska, and Garlic soils. The soils in the enclosed depressions are the very poorly drained Dawson, Greenwood, and Loxley soils. Small and medium areas of Cusino soils, which formed in sandy and gravelly outwash, also are included in areas of this landform. This landform was deposited prior to the Marquette advance, which occurred approximately 10,000 years ago.

#### Disintegration Moraine ("Hay Meadow Moraine")

This moraine is a buried moraine along the border of Delta County. It is a gently undulating to very steep system of moraines consisting of sandy ablation or flow till and outwash that has an intermittent loamy eolian mantle. This landform is characterized by a chaotic mound-and-pit topography, generally randomly oriented, with enclosed depressions. The dominant soils in the uplands are Kalkaska, Stutts, and Blue Lake soils. Greenwood, Dawson, and Loxley soils are the dominant soils in

the enclosed depressions. This landform was deposited prior to the Marquette advance, which occurred about 10,000 years ago.

#### **Disintegration Moraine (Steuben Moraine)**

This landform occurs along the border with Schoolcraft County. It is a gently undulating to very steep system of moraines consisting of sandy ablation or flow till and sandy outwash. An intermittent loamy eolian mantle overlies these deposits. This landform is characterized by a chaotic mound-and-pit topography, generally randomly oriented, with enclosed depressions. The dominant soils in the uplands are Islandlake, Kalkaska, Garlic, McMillan, and Stutts soils. Greenwood, Dawson, and Loxley soils are the dominant soils in the enclosed depressions.

#### Ice-Margin Complex (Marquette advance)

This complex is a gently undulating to very steep assemblage of landforms that include head-of-outwash, ice-contact slope, moraines, kame terraces, outwash plains, and proglacial lakes. These landforms were constructed proximal to a relatively static, rapidly wasting glacial margin. The well drained Blue Lake and Garlic soils are the dominant soils in areas of this landform. They formed in sandy ablation or flow till and outwash. Smaller areas of sandy and silty lacustrine and sandy and gravelly outwash soils also occur in areas of this landform (Voelker, Fence, and Cusino soils).

#### **Beach Ridges and Dunes**

This landform occurs as nearly level to steep, sandy deposits on beach ridges and dunes. The beach ridges are roughly parallel to the shoreline, representing successive positions of a receding shoreline. Much of this landform exhibits a ridge-and-swale topography with wet soils in the swales and dry sandy soils on the beach ridges. The dunes are both active and stabilized. Deer Park soils are the dominant soils on the beach ridges, and Shelldrake soils are the dominant soils on the stabilized dunes. Kinross and Dawson soils are the dominant soils in the swales and depressions. Embayments also occur in areas of this landform.

#### **Outwash Fans**

This landform consists of nearly level to hilly outwash deposits adjacent to the icemargin complex and ice-contact slopes. The somewhat excessively drained Kalkaska soils are the dominant soils in areas of this landform. This landform developed in the outwash of the Marquette advance.

#### **Pitted Outwash Plains**

This landform is a nearly level to hilly outwash plain with numerous enclosed depressions. It is adjacent to the ice-margin complex and ice-contact slopes. Included are smaller areas of outwash fans and numerous kettle lakes. The somewhat excessively drained Kalkaska soils are the dominant soils in the uplands. Greenwood, Dawson, Loxley, and Kinross soils are the dominant soils in the enclosed depressions. This landform developed in the outwash of the Marquette advance.

#### **Outwash Plains**

This landform dominantly occurs as nearly level outwash plains. Most areas are dominated by very poorly drained organic soils (Tawas and Carbondale soils) and poorly drained, sandy mineral soils (Deford soils), except for the outwash plain (Kingston outwash) in the eastern part of the county, which is dominated by the somewhat excessively drained Kalkaska soils. This landform developed in outwash from the Marquette advance.

#### **Bedrock-Controlled Ground Moraine (Miners River area)**

This landform occurs as shallow to moderately deep, sandy glaciofluvial deposits and moderately deep to very deep, loamy till overlying sandstone bedrock (Munising and Au Train Formations). A very steep rock outcrop escarpment of these formations is along Lake Superior east of Munising (Pictured Rocks National Lakeshore). The glaciofluvial deposits are mainly the result of kame terraces and glacial drainage channels that were formed during the discharge from the Marquette advance and from glacial Lake Duluth. The dominant soils are the very poorly drained Trout Bay and poorly drained Gongeau soils in depressions and drainageways and the somewhat excessively drained Shingleton and moderately well drained Munising, calcareous substratum, soils in the uplands.

#### **Recessional Moraines**

This landform is a nearly level to hilly moraine consisting of sandy and gravelly outwash (Traunik soils) and loamy calcareous lodgment till (Shoepac soils). Also, numerous organic soils, including Carbondale and Cathro soils, are in the relict glacial drainageways. This landform marks the farthest extent of the Marquette advance.

#### **Kame Terraces**

This landform occurs as a series of outwash terraces that were deposited between the ice and a higher glacier landform. The nearly level to very steep terraces are dominantly characterized by the excessively drained Kalkaska and Cusino soils in the uplands. In some areas these deposits overlie lodgment till and/or bedrock. Also included are small areas of glacial channels in depressions and drainageways. The very poorly drained Carbondale and Tawas soils are the dominant soils in these areas. This landform was formed during the discharge from the Marquette advance and from glacial Lake Duluth.

#### **Glacial Drainage Channels**

This landform occurs as a nearly level to very steep series of channels and terraces that were deposited during deglaciation of the Marquette advance and discharge from glacial Lake Duluth. Many of the soils on upland terraces have sandy-skeletal profiles; depending on the underlying bedrock, the substratum of these soils may be either acidic (Waiska soils) or calcareous (Eben soils). In other areas the channels eroded down to the underlying bedrock. Many of the soils that formed in these areas are shallow soils, such as the excessively drained Shingleton and poorly drained Gongeau and Ruse soils. In areas where the bedrock was "soft" sandstone, as in the Munising Formation, gorges were formed. An example is the gorge along the Rock River.

#### **Bedrock-Controlled Ground Moraine (west of Munising)**

This landform is a nearly level to very steep ground moraine consisting of a discontinuous thin mantle of loamy lodgment till and sandy and gravelly glaciofluvial deposits overlying sandstone bedrock. The landform has two distinct geomorphic features. One part of the landform consists of four distinct "outliers," which are bedrock highs that were relatively unaffected by glaciofluvial deposits. These areas have a thin deposit of loamy lodgment till overlying sandstone bedrock. They also have dissected side slopes, and many of the ravines have perennial streams. The dominant soils are the very deep, moderately well drained Munising and moderately deep, moderately well drained Abbaye soils in the uplands and the shallow, poorly drained Gongeau soils in the ravine bottoms. The other part of the landform consists

of a nearly level to rolling ground moraine that has a thin discontinuous mantle of loamy lodgment till and/or sandy or sandy-skeletal glaciofluvial deposits overlying sandstone bedrock (kame terraces and glacial drainage channels). This part of the landform ranges from very stony to extremely bouldery. The dominant soils are the shallow, moderately well drained Sauxhead and shallow, poorly drained Burt soils.

#### **History and Development**

Based on information from "Alger County: A Centennial History, 1885-1985," published by the Alger County Historical Society in 1986.

The Ojibwas were the early inhabitants of the survey area. Their population was small, and they were likely nomadic, traveling with the seasons in search of forage and game. As early as 1619, the first French fur traders and missionaries had begun to document and name lakeshore features, such as Grand Marais, Pictured Rocks, and Au Sable dunes. There were few passing explorers, trading posts, or missionaries along the shoreline for more than two centuries.

By the 1840s, U.S. government contractors had surveyed the lands of present-day Alger County and the area was opened up for timber land acquisition and settlement. With the onset of lake commerce around 1860, Munising and Grand Marais became logical harbor sites for industrial development and utilization of the abundant natural resources. By the 1880s, Munising and Grand Marais were boomtown settlements.

From the beginning, the vast resources of timber supported the growth and development of Alger County. The first commercial enterprise was the marketing of timber pine. This effort was short-lived, and markets turned towards hardwood timber. In two locations, iron was made for which charcoal was kilned locally from the hardwood timber. The iron ore was shipped from the iron regions in the west. The Schoolcraft Iron Company opened the first blast furnace in Munising Bay, where iron ore was smelted from the late 1860s through the late 1870s. In the 1870s, another blast furnace was established at Bay Furnace, near present-day Christmas. Both furnaces were productive and shipped out tens of thousands of tons of charcoal pig iron. Eventually, as the economics of the business changed, iron production ceased. For some time longer, however, charcoal still continued to be kilned and moved by rail to the iron regions in the west.

The completion of the Mackinac & Marquette railroad from St. Ignace to Marquette in 1881 marked a shift from the declining iron smelting and charcoal industries towards other resources in timber. Later in 1895, the completion of the Munising Railway with its terminus at Munising Bay opened the interior of the county for transportation and continued timber export. The county seat was moved from Au Train to Munising in 1900.

The rather short-lived pine boom of the 1880s and 1890s and, later, the cordwood camps of the early 1900s supplied local saw mills, veneer mills, paper mills, and tanneries in Munising, Au Train, and Grand Marais and provided large exports elsewhere in the Great Lakes region. By the 1900s, much of the hardwood logging was done by Finnish, Slovenian, Swedish, and French immigrants. The Cleveland-Cliffs Company was the major employer of these cordwood camps. Centered on small railroad villages, dozens of communities, such as Coalwood, Hanely, Forest Lake, Acherman Lake, Cold Springs, Camerson, Louds Spur, Rumely, and Dorsey, rose and fell. Adversity resulting from economics, war, depression, fires, mechanization, and depletion of resources all affected the prosperity of the cordwood camps. In the 1930s and 1940s, Roosevelt's Civilian Conservation Corps (CCC) camps began to seed pine into the cleared stumpland, which resulted in much of the pole-sized pine in the area today.

Few large farms existed until the increased arrival of immigrants around 1900. The Michigan Legislature funded the U.P. Agricultural Experimental Station at Chatham in 1899. Shortly thereafter, in 1904, the first soil survey of Alger County was developed by the Department of Agriculture. Eight soil types were recognized in this survey, and interpretations and suitabilities of the soils for agriculture were described. Most farms were settled in the western and southwestern parts of the county near Chatham and Trenary, where conditions are generally favorable for plant growth and large tracts of cleared stumpland remained after logging. In addition to livestock operations, such crops as hay, oats, barley, wheat, and potatoes were grown. In 1930, less than 10 percent of the land in the county was used for agriculture.

According to the Bureau of the Census, the 1930 population estimate of 9,327 has risen only slightly to the 1998 estimate of 9,887. Along with the prison industry, the hardwood lumber-veneer and paper products industries remain the county's largest employers. Year-round snowmobiling, skiing, hunting, camping, hiking, and other forms of tourism all contribute substantially to the economy in the area. The Hiawatha National Forest was established in 1931, and the spectacular Pictured Rocks National Lakeshore was established in 1972.

Alger County was separated from Schoolcraft County and organized on March 17, 1885. It was named after Russell A. Alger, the Governor of Michigan.

#### **Farming**

The history of farming in Alger County is directly related to the logging industry. As the forests were logged, many of the early settlers purchased the "cutover" land and began farming. These early farmers, who also worked part-time in the woods, had small dairy herds and grew mainly oats, barley, and hay for their livestock (Alger County Historical Society, 1986). They also grew vegetables and fruit for home consumption. The local logging camps were some of the earliest customers for their farm products. The farming community grew steadily, augmented by an influx of immigrants in the early 1900s and the availability of land. The establishment of the Michigan State Agricultural Experiment Station in Chatham was instrumental in helping the early farmers employ the latest advances in agronomy and animal husbandry.

Farming began to decline in the early 1950s with the advent of larger and more modern, mechanized farming operations. The area's distance from markets and its short growing season also made it hard for local farmers to stay in business. In 1992, there were 59 farms in Alger County with an average size of about 280 acres (Michigan Department of Agriculture, 1992). The county had 8,208 acres of cropland, of which 4,600 acres was used for hay and 600 acres was used for oats and barley. The remaining acreage was used as pastureland or for other specialty crops. Dairying is still the major farming enterprise; there are also a few beef and sheep operations in the area. Specialty crops, such as strawberries, potatoes, and Christmas trees, also are grown to meet the local demand. There is a growing market for organic fruits and vegetables.

Most of the farmland is in the southwestern part of the county near Sundell, Rumely, Eben, Chatham, and Trenary. The dominant soils in the county that are used for crops are Trenary, Shoepac, Chatham, and Traunik soils. Recently, people have moved to the country so they can have a few horses or livestock and space for a vegetable and flower garden. If this trend continues, most of the former and current cropland in Alger County will be preserved for future generations.

#### **Industry and Transportation Facilities**

Timber and pulpwood enterprises are the major sources of employment in Alger County. Other sources include tourism, prison facilities, hospital and health care facilities, retail trade and service, government, and schools. Wood products are the county's main industry. A paper mill and a lumber and veneer mill are the major local manufacturers of wood products. There are also local sawmills throughout the county. The majority of the pulpwood is hauled to paper mills in Escanaba and Quinnesec.

The main roads in the county are State Highways M-28, M-94, M-67, and M-77 and U.S. Highway 41. The county is served by the Wisconsin Central Railroad, which runs east from Munising. A small airport provides seasonal air transportation.

#### Recreation

Alger County offers a wide variety of recreational opportunities. It has many fine campgrounds along its rivers and inland lakes and along the Lake Superior shoreline. There are numerous scenic waterfalls in the county. The Hiawatha National Forest, Grand Island National Recreation Area, Pictured Rocks National Lakeshore, and the Lake Superior and Escanaba River State Forests cover a major portion of the county. Recreational activities include snowmobiling, skiing, hiking, backpacking, hunting, fishing, canoeing, and kayaking. The streams in the county are noted for their trout, and Lake Superior is noted for its lake trout, coho salmon, and whitefish. The county offers some of the finest areas for snowmobiling and cross-country skiing in the Midwest. There are many miles of groomed snowmobile and ski trails. The picturesque sandstone cliffs of the Pictured Rocks National Lakeshore and Grand Island are very popular destinations for kayakers and boaters. The North Country National Scenic Trail and the Bay De Noc Grand Island National Recreation Trail are popular destinations for hikers and backpackers. The tourism industry is one of the leading sources of income in Alger County.

#### Wildlife Habitat

Alger County has a large and diverse population of wildlife and fish. White-tailed deer, black bear, coyote, fox, snowshoe hare, squirrels, hawks, owls, songbirds, and bald eagles are common. The endangered peregrine falcon nests high along the steep sandstone cliffs on Grand Island. A small but increasing population of timber wolves is making a comeback in the region. A few moose can be seen in the large swamps on the eastern side of the county. The lakes and streams support northern pike, walleye, yellow perch, smallmouth bass, largemouth bass, panfish, brook trout, brown trout, and rainbow trout. The offshore waters and bays of Lake Superior support good populations of lake trout, coho salmon, and whitefish.

#### **Lakes and Streams**

Alger County has 266 inland lakes with a surface area of about 23,424 acres. The five largest lakes are Au Train, Cleveland Cliffs Basin, Sixteen Mile, Beaver, and Grand Sable Lakes. The county has over 80 miles of Lake Superior shoreline.

The major rivers are the Laughing Whitefish, Au Train, Whitefish, Indian, Sturgeon, Sucker, and Miners Rivers. The Laughing Whitefish, Au Train, Miners, and Sucker Rivers are part of the Lake Superior watershed. The Whitefish, Indian, and Sturgeon Rivers are part of the Lake Michigan watershed. These rivers along with their numerous tributary streams offer excellent recreational opportunities, ranging from trout fishing to canoeing.

#### **How This Survey Was Made**

This survey was made to provide updated information about the soils and miscellaneous areas in the survey area, which is in Major Land Resource Areas 93B and 94B. Major land resource areas (MLRAs) are geographically associated land resource units that share a common land use, elevation and topography, climate, water, soils, and vegetation (USDA/NRCS, 2006). Alger County is a subset of MLRA 93B, Superior Stony and Rocky Loamy Plains and Hills, Eastern Part, and MLRA 94B, Michigan Eastern Upper Peninsula Sandy Drift. Map unit design is based on documentation of the occurrence of soils throughout an MLRA. In some places in this publication, a soil may be referred to that was not mapped in Alger County but that does occur within the MLRA.

The information includes a description of the soils and miscellaneous areas and their location and a discussion of their properties and the subsequent effects on suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil is associated with a particular kind or segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, soil scientists develop a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientists to predict with a considerable degree of accuracy the kind of soil at a specific location on the landscape.

Individual soils on the landscape commonly merge into one another as their characteristics gradually change. To construct an accurate map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. The maximum depth of observation was about 80 inches (6.7 feet). The soil scientists noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, soil reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested

through observation of the soils in different uses and under different levels of management. Interpretations are modified as necessary to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a seasonal high water table within certain depths in most years, but they cannot predict that the water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area may not fully agree with those of the soils in adjacent survey areas. Differences are the result of an improved knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

#### **Survey Procedures**

The general procedures followed in making this survey are described in the "National Soil Survey Handbook" of the Natural Resources Conservation Service (USDA/NRCS). The Hiawatha National Forest Ecological Classification System (Kudray, 2002; Landwehr, 2004) was used in conjunction with the handbook to prepare the soil survey on the Forest Service lands within the administrative boundary of the Hiawatha National Forest. The map units on the Forest Service lands were designed differently from those in other parts of the survey area.

The ecological classification system is an integrated system that includes evaluation and classification of landscape areas. Ecological units are mapped on aerial photographs, and interpretations are made from inventory maps for use in managing forestland and resources.

#### **Procedures for Private and State Lands**

Prior to the start of the project, soil scientists reviewed previously completed soil survey maps made for conservation planning and for earlier published soil surveys of Alger County. Other references included bedrock and glacial landform maps that were studied and used to plan mapping strategy. Before the actual fieldwork was begun, preliminary boundaries of slopes and landforms were plotted stereoscopically on 1:24,000 leaf-off aerial photographs. USGS topographic maps at a scale of 1:24,000 were used to help the soil scientists relate land and image features.

A reconnaissance was made by pickup truck before the surface was traversed on foot. In areas where the soil pattern is very complex, traverses and random observations were spaced as closely as 200 yards. In areas where the soil pattern is relatively simple, traverses were about one-fourth mile apart.

As the traverses were made, the landscape was divided into segments. For example, a hillside was separated from a swale and a gently sloping ridgetop from a very steep side slope.

Observations of such items as landforms, vegetation, and roadcuts were made without regard to spacing. Soil boundaries were determined on the basis of examinations, observations of the landscape and vegetation, and photo

interpretation. The soil material was examined with the aid of a hand auger or a spade to a depth of about 7 feet. The pedons described as typical were observed and studied in pits that were dug with backhoes or by hand using shovels, mattocks, and digging bars.

Notes were taken on the composition of map units during the first years of the project. These notes were supplemented with transect data and additional notes as mapping progressed and as the composition of individual map units was determined.

Samples for chemical and physical analyses were taken from representative sites of some soils in the survey area. The analyses were made by the Soil Survey Laboratory in Lincoln, Nebraska. The results of the analyses are stored in a computerized data file at the laboratory. The results of the analyses and descriptions of the laboratory procedures can be obtained on request from the laboratory or from the State office of the Natural Resources Conservation Service in East Lansing, Michigan.

After the completion of soil mapping on aerial photographs, map unit delineations were transferred by hand to another set of the same photographs. Cultural features were recorded from observations of the maps and the landscape.

#### **Procedures for the Hiawatha National Forest**

Before ecological units were mapped, information on the climate, geology, soils, hydrology, and vegetation in the survey area was collected. Existing soil maps were reviewed. An ecological land-type phase key from the Huron-Manistee Forest was adopted and modified for use on the sandy outwash plains of the forest. A wetland ecological land-type key was developed by Greg Kudray (Kudray, 2002). Prior to the start of fieldwork, map units were delineated on aerial photos using stereoscopic techniques. The pre-mapping reconnaissance was designed to test the variety of ecological land-type phases on the west unit of the Hiawatha National Forest. Based on the pre-mapping reconnaissance and early production mapping, two additional land-type groups were added to the key.

Following reconnaissance, mapping personnel traversed the landscape, evaluated the components of the current ecosystems, determined and observed ecological unit boundaries in the field, and delineated preliminary map units on aerial photographs at a scale of 4 inches to a mile. During field mapping, stereo images, photo-tones, and photo colors were used to delineate landscape features on the aerial photographs. Some important characteristics used by the field personnel to evaluate the context of an area included water table levels, soil texture and color, drainage systems, geologic indicators, and interpretation of vegetative species groups.

Mappers typically inventoried 300 to 500 acres per day. They performed detailed evaluations and completed data cards on at least one plot per mapping delineation. These sites were strategically selected for the examination of landscape features and the collection of data on overstory, understory, ground flora, forest floor, soil, substratum, and ground water depths for documenting ecological units. Profiles of sandy soils were described to a depth of 15 feet. The presence of textural bands deep in the substratum in sandy soils has been shown to have a significant influence on tree growth and species composition (Hannah and Zahner, 1970; Host and others, 1988). Thus, recording the presence, absence, or intensity of deep-lying textural bands or water tables was an important part of the sampling and inventory scheme on outwash plains. In loamy or rocky areas, the soils were described to a depth of 7 feet. Following field inventory, the plot data were entered into an Access database. These data are a permanent part of the forest records available at the Hiawatha National Forest supervisor's office.

Following field inventory, the final boundaries of the ecological units were drawn on the aerial photographs. The completed photography was checked for line closure and

#### Soil Survey of Alger County, Michigan

for matching of delineations across photographs. From the photos, the mapping information was transferred to 1:24,000, 3-millimeter-thick mylar and checked for consistency and line closure. The mylars were scanned and rectified, and the electronic coverage was attributed with ecological land-type phase (ELTP) codes. Hardcopy maps were made, and the digital product was checked for consistency.

Ecological land-type phase (ELTP) map units on forest service lands were line matched to soil map units (SMUs) on private and State lands. Edge-matching typically occurred in the field so that questionable map units could be checked. An ELTP-to-SMU correlation legend was created to provide a crosswalk between ELTPs and soil map units. Each polygon (delineation) on Forest Service lands was given an ELTP code and an SMU code. Once the maps were completed and checked for consistency, private and State mapping was added to the Forest Service mapping.

### **General Soil Map Units**

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. These broad areas are called associations. Each association on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one association can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

#### 1. Shoepac-Trenary-Carbondale Association

Very deep, nearly level to steep, well drained to very poorly drained, loamy and mucky soils on ground moraines

#### Setting

Landform: Ground moraines Slope range: 0 to 35 percent

#### Composition

Extent of the association in the survey area: 5 percent

Extent of the soils in the association:
Shoepac and similar soils: 30 percent
Trenary and similar soils: 20 percent
Carbondale and similar soils: 18 percent

Soils of minor extent: 32 percent

#### Soil Properties and Qualities

#### Shoepac

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Silty eolian mantle over loamy till

Texture of the surface layer: Silt loam Slope: Nearly level and gently sloping

#### **Trenary**

Depth class: Very deep Drainage class: Well drained

Parent material: Silty eolian mantle over loamy till

Texture of the surface layer: Silt loam Slope: Gently undulating to steep

#### Carbondale

Depth class: Very deep

Drainage class: Very poorly drained Parent material: Organic deposits Texture of the surface layer: Muck

Slope: Nearly level

#### Soils of Minor Extent

- Traunik soils in landscape positions similar to those of the Shoepac and Trenary soils
- · Ensley and Nahma soils in depressions and drainageways
- · Charlevoix, McMaster, and Reade soils in nearly level and gently undulating areas

#### Use and Management

Major use: Forestland

Management concerns: Equipment limitations, seedling mortality, windthrow hazard Management considerations:

- In areas of the Carbondale soils, access is easiest during the winter, when the soils are frozen or have adequate snow cover.
- Skidders should not be used in areas of the Shoepac and Trenary soils during wet periods, when ruts form easily.
- · Year-round logging roads require a gravel base.
- Culverts are needed to maintain the natural drainage system.
- Because of wetness and seedling mortality, trees are generally not planted in areas of the Carbondale soils.
- Using harvest methods that do not leave the remaining trees widely spaced reduces the windthrow hazard.

#### 2. Shoepac-Ensley-Cathro Association

Very deep, nearly level and gently sloping, moderately well drained to very poorly drained, loamy and mucky soils on ground moraines

#### Setting

Landform: Ground moraines Slope range: 0 to 6 percent

#### Composition

Extent of the association in the survey area: 7 percent

Extent of the soils in the association: Shoepac and similar soils: 35 percent Ensley and similar soils: 20 percent Cathro and similar soils: 15 percent Soils of minor extent: 30 percent

#### Soil Properties and Qualities

#### Shoepac

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Silty eolian mantle over loamy till

Texture of the surface layer: Silt loam Slope: Nearly level and gently sloping

**Ensley** 

Depth class: Very deep

Drainage class: Poorly drained Parent material: Loamy till Texture of the surface layer: Muck

Slope: Nearly level

Cathro

Depth class: Very deep

Drainage class: Very poorly drained

Parent material: Organic deposits over loamy till

Texture of the surface layer: Muck

Slope: Nearly level

#### Soils of Minor Extent

- Escanaba, Traunik, and Trenary soils in nearly level to rolling areas
- Charlevoix and Reade soils in nearly level and gently undulating areas
- · Nahma soils in depressions and drainageways

#### Use and Management

Major use: Forestland

Management concerns: Equipment limitations, seedling mortality, windthrow hazard Management considerations:

- In areas of the Cathro and Ensley soils, access is easiest during the winter, when the soils are frozen or have adequate snow cover.
- · Year-round logging roads require a gravel base.
- Culverts are needed to maintain the natural drainage system.
- Skidders should not be used in areas of the Shoepac soils during wet periods, when ruts form easily.
- Because of seedling mortality and wetness, trees are generally not planted in areas
  of the Cathro and Ensley soils.
- Windthrow can be minimized by using harvest methods that do not leave the remaining trees widely spaced.

#### 3. Munising, Calcareous Substratum-Carbondale-Greylock Association

Very deep, nearly level to steep, well drained to very poorly drained, loamy and mucky soils on ground moraines

#### Setting

Landform: Ground moraines Slope range: 0 to 35 percent

#### Composition

Extent of the association in the survey area: 10 percent

Extent of the soils in the association:

Munising, calcareous substratum, and similar soils: 30 percent

Carbondale and similar soils: 25 percent

Greylock and similar soils: 15 Soils of minor extent: 30 percent

#### Soil Properties and Qualities

#### Munising, calcareous substratum

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Loamy eolian material over loamy till

Texture of the surface layer: Fine sandy loam

Slope: Nearly level to rolling

#### Carbondale

Depth class: Very deep

Drainage class: Very poorly drained Parent material: Organic deposits Texture of the surface layer: Muck

Slope: Nearly level

#### Greylock

Depth class: Very deep Drainage class: Well drained Parent material: Loamy till

Texture of the surface layer: Fine sandy loam

Slope: Nearly level to steep

#### Soils of Minor Extent

- Blue Lake, Cookson, Escanaba, and Steuben soils in landscape positions similar to those of the Munising and Greylock soils
- · Au Gres, Charlevoix, and Halfaday soils in nearly level and gently undulating areas
- · Deford, Ensley, and Nahma soils in depressions and drainageways

#### Use and Management

Major use: Forestland

Management concerns: Equipment limitations, seedling mortality, windthrow hazard Management considerations:

- In areas of the Carbondale soils, access is easiest during the winter, when the soils are frozen or have adequate snow cover.
- In areas of the Munising and Greylock soils, skidders should not be used during wet periods, when ruts form easily.
- · Year-round logging roads require a gravel base.
- Culverts are needed to maintain the natural drainage system.
- Because of wetness and seedling mortality, trees are generally not planted in areas
  of the Carbondale soils.
- Using harvest methods that do not leave the remaining trees widely spaced reduces the windthrow hazard.

#### 4. Munising-Abbaye-Deerton Association

Very deep to moderately deep, nearly level to very steep, moderately well drained and excessively drained, loamy and sandy soils on bedrock-controlled moraines

#### Setting

Landform: Bedrock-controlled moraines

Slope range: 1 to 70 percent

# Composition

Extent of the association in the survey area: 7 percent

Extent of the soils in the association: Munising and similar soils: 40 percent Abbaye and similar soils: 20 percent Deerton and similar soils: 15 percent Soils of minor extent: 25 percent

# Soil Properties and Qualities

#### Munising

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Loamy till

Texture of the surface layer: Fine sandy loam

Slope: Nearly level to rolling

#### **Abbaye**

Depth class: Moderately deep

Drainage class: Moderately well drained

Parent material: Loamy till

Texture of the surface layer: Fine sandy loam Slope: Nearly level to moderately sloping

#### Deerton

Depth class: Moderately deep Drainage class: Excessively drained Parent material: Sandy outwash Texture of the surface layer: Sand Slope: Gently undulating to very steep

#### Soils of Minor Extent

- Shingleton, Tokiahok, and Waiska soils in nearly level to very hilly areas
- Carbondale, Gay, Gongeau, Jacobsville, Jeske, and Skanee soils in depressions and drainageways

#### Use and Management

Major use: Forestland

Management concerns: Erosion hazard, equipment limitations, seedling mortality, windthrow hazard

Management considerations:

- The hazard of erosion can be reduced by building roads on the contour; by seeding logging roads, landings, and areas that have been cut and filled; and by installing culverts and water bars.
- Skidders should not be used in areas of the Munising and Abbaye soils during wet periods, when ruts form easily.
- Year-round logging roads require a gravel base.
- Using containerized planting stock can help to prevent seedling mortality in areas of the Deerton soils.
- Selective cutting can reduce the windthrow hazard.

# 5. Sauxhead-Burt-Munising Association

Shallow to very deep, nearly level to rolling, moderately well drained and poorly drained, sandy and loamy soils on bedrock-controlled ground moraines

#### Setting

Landform: Bedrock-controlled ground moraines

Slope range: 0 to 15 percent

# Composition

Extent of the association in the survey area: 2 percent

Extent of the soils in the association:
Sauxhead and similar soils: 25 percent
Burt and similar soils: 25 percent
Munising and similar soils: 20 percent
Soils of minor extent: 30 percent

#### Soil Properties and Qualities

#### Sauxhead

Depth class: Shallow

Drainage class: Moderately well drained

Parent material: Sandy and channery glaciofluvial deposits

Texture of the surface layer: Sandy loam Slope: Nearly level and gently sloping

#### **Burt**

Depth class: Shallow

Drainage class: Poorly drained

Parent material: Sandy glaciofluvial deposits

Texture of the surface layer: Muck

Slope: Nearly level

#### Munisina

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Loamy till

Texture of the surface layer: Fine sandy loam

Slope: Nearly level to rolling

#### Soils of Minor Extent

· Frohling soils in very hilly to steep areas

• Skandia, Cathro, Gay, and Skanee soils in depressions and drainageways

#### Use and Management

Major use: Forestland

Management concerns: Equipment limitations, seedling mortality, windthrow hazard Management considerations:

- In areas of the Burt soils, access is easiest during the winter, when the soils are frozen or have adequate snow cover.
- Skidders should not be used in areas of the Munising and Sauxhead soils during wet periods, when ruts form easily.
- · Year-round logging roads require a gravel base.
- · Culverts are needed to maintain the natural drainage system.

- Trees are generally not planted in areas of the Burt soil because of wetness and seedling mortality.
- · Selective cutting can reduce the windthrow hazard.

# 6. Shingleton-Trout Bay-Munising, Calcareous Substratum, Association

Shallow to very deep, nearly level to very steep, somewhat excessively drained to very poorly drained, sandy, mucky, and loamy soils on bedrock-controlled ground moraines

# Setting

Landform: Bedrock-controlled ground moraines

Slope range: 0 to 70 percent

# Composition

Extent of the association in the survey area: 5 percent

Extent of the soils in the association: Shingleton and similar soils: 35 percent Trout Bay and similar soils: 20 percent

Munising, calcareous substratum, and similar soils: 20 percent

Soils of minor extent: 25 percent

# Soil Properties and Qualities

### Shingleton

Depth class: Shallow

Drainage class: Somewhat excessively drained Parent material: Sandy glaciofluvial deposits Texture of the surface layer: Loamy sand

Slope: Nearly level to very steep

#### **Trout Bay**

Depth class: Moderately deep Drainage class: Very poorly drained Parent material: Organic deposits Texture of the surface layer: Muck Slope: Nearly level to steep

#### Munising, calcareous substratum

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Loamy eolian material over loamy till

Texture of the surface layer: Fine sandy loam

Slope: Nearly level to rolling

#### Soils of Minor Extent

- Gongeau and Nahma soils in depressions and drainageways
- Au Train, Ensign, Jeske, and Nykanen soils in nearly level and gently undulating areas
- Deer Park and Shelldrake soils in nearly level and gently sloping areas

# Use and Management

Major use: Forestland

Management concerns: Erosion hazard, equipment limitations, seedling mortality,

windthrow hazard

Management considerations:

• Building roads on the contour can help to control erosion.

- In areas of the Trout Bay soils, access is easiest during the winter, when the soils are frozen or have adequate snow cover.
- Skidders should not be used in areas of the Munising soils during wet periods, when ruts form easily.
- Year-round logging roads require a gravel base, and culverts are needed to provide natural drainage.
- Because of wetness and seedling mortality, trees are generally not planted in areas
  of the Trout Bay soils.
- Using harvest methods that do not leave the remaining trees widely spaced reduces the windthrow hazard.

# 7. Kalkaska-Dillingham Association

Very deep, nearly level to very steep, somewhat excessively drained and well drained, sandy soils on disintegration moraines

# Setting

Landform: Disintegration moraines Slope range: 0 to 70 percent

### Composition

Extent of the association in the survey area: 3 percent

Extent of the soils in the association:
Kalkaska and similar soils: 50 percent
Dillingham and similar soils: 25 percent
Soils of minor extent: 25 percent

#### Soil Properties and Qualities

#### Kalkaska

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Sand

Texture of the surface layer: Sand Slope: Nearly level to very steep

#### Dillingham

Depth class: Very deep Drainage class: Well drained Parent material: Sand

Texture of the surface layer: Loamy sand

Slope: Nearly level to very steep

### Soils of Minor Extent

- · Greenwood and Kinross soils in depressions
- · Paquin and Finch soils in nearly level and gently undulating areas
- Okeefe and Wallace soils in landscape positions similar to those of the Kalkaska and Dillingham soils

# Use and Management

Major use: Forestland

Management concerns: Equipment limitations, erosion hazard, seedling mortality Management considerations:

- Loose sand can interfere with the traction of logging equipment.
- Building roads on the contour helps to control erosion.
- Using containerized planting stock can help to prevent seedling mortality.

# 8. Garlic-Blue Lake Association

Very deep, nearly level to very steep, well drained, sandy soils on disintegretion moraines

# Setting

Landform: Disintegration moraines Slope range: 0 to 70 percent

# Composition

Extent of the association in the survey area: 11 percent

Extent of the soils in the association: Garlic and similar soils: 45 percent Blue Lake and similar soils: 35 percent Soils of minor extent: 20 percent

# Soil Properties and Qualities

#### Garlic

Depth class: Very deep Drainage class: Well drained Parent material: Sandy outwash Texture of the surface layer: Sand Slope: Nearly level to very steep

#### Blue Lake

Depth class: Very deep Drainage class: Well drained Parent material: Sandy till

Texture of the surface layer: Loamy sand

Slope: Nearly level to very steep

#### Soils of Minor Extent

- Steuben and Waiska soils in landscape positions similar to those of the Garlic and Blue Lake soils
- Finch and Paquin soils in nearly level and gently undulating areas
- Carbondale and Deford soils in depressions and drainageways

# Use and Management

Major use: Forestland

Management concerns: Erosion hazard, equipment limitations

Management considerations:

- Skid trails and roads should be located in the less sloping areas between the ravines.
- Seeding logging roads helps to prevent excessive soil loss.

- Special logging methods, such as yarding with a cable, may be needed in the very steep areas.
- Loose sand can interfere with the traction of logging equiment.

# 9. Shoepac-Carbondale-Traunik Association

Very deep, nearly level to steep, well drained to very poorly drained, loamy, sandy and gravelly, and mucky soils on recessional moraines

# Setting

Landform: Fluted recessional moraines

Slope range: 0 to 35 percent

# Composition

Extent of the association in the survey area: 4 percent

Extent of the soils in the association:
Shoepac and similar soils: 35 percent
Carbondale and similar soils: 25 percent
Traunik and similar soils: 20 percent
Soils of minor extent: 20 percent

# Soil Properties and Qualities

# Shoepac

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Silty eolian material over loamy till

Texture of the surface layer: Silt loam Slope: Nearly level and gently sloping

#### Carbondale

Depth class: Very deep

Drainage class: Very poorly drained Parent material: Organic deposits Texture of the surface layer: Muck

Slope: Nearly level

# Traunik

Depth class: Very deep Drainage class: Well drained

Parent material: Loamy mantle over gravelly and sandy outwash

Texture of the surface layer: Gravelly fine sandy loam

Slope: Nearly level to steep

# Soils of Minor Extent

- · McMaster soils in nearly level and gently undulating areas
- Kalkaska, Blue Lake, and Trenary soils in gently rolling and rolling areas
- · Ensley and Nahma soils in depressions and drainageways

#### Use and Management

Major use: Forestland

Management concerns: Equipment limitations, seedling mortality, windthrow hazard Management considerations:

• In areas of the Carbondale soils, access is easiest during the winter, when the soils are frozen or have adequate snow cover.

- Skidders should not be used in areas of the Shoepac and Traunik soils during wet periods, when ruts form easily.
- · Year-round logging roads require a gravel base.
- Culverts are needed to maintain the natural drainage system.
- Because of wetness and seedling mortality, trees are generally not planted in areas of the Carbondale soils.
- Using harvest methods that do not leave the remaining trees widely spaced reduces the windthrow hazard.

#### **10**. Kalkaska Association

Very deep, nearly level to very steep, somewhat excessively drained, sandy soils on pitted outwash plains

# Setting

Landform: Pitted outwash plains Slope range: 0 to 70 percent

# Composition

Extent of the association in the survey area: 21 percent

Extent of the soils in the association: Kalkaska and similar soils: 75 percent Soils of minor extent: 25 percent

### Soil Properties and Qualities

#### Kalkaska

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Sandy outwash Texture of the surface layer: Sand Slope: Nearly level to very steep

#### Soils of Minor Extent

- Finch and Paguin soils in nearly level and gently undulating areas
- Carbondale and Kinross soils in depressions and drainageways

### Use and Management

Major use: Forestland

Management concerns: Erosion hazard, equipment limitations, seedling mortality Management considerations:

- Building roads on the contour can help to control erosion.
- Loose sand can interfere with the traction of logging equipment.
- Using containerized planting stock can reduce the seedling mortality rate in areas of these droughty soils.

#### Carbondale-Kalkaska-Kinross Association 11.

Very deep, nearly level to very steep, very poorly drained to somewhat excessively drained, mucky and sandy soils on outwash plains

### Setting

Landform: Outwash plains Slope range: 0 to 70 percent

#### Composition

Extent of the association in the survey area: 6 percent

Extent of the soils in the association:
Carbondale and similar soils: 45 percent
Kalkaska and similar soils: 20 percent
Kinross and similar soils: 15 percent
Soils of minor extent: 20 percent

### Soil Properties and Qualities

#### Carbondale

Depth class: Very deep

Drainage class: Very poorly drained Parent material: Organic deposits Texture of the surface layer: Muck

Slope: Nearly level

#### Kalkaska

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Sandy outwash Texture of the surface layer: Sand Slope: Nearly level to very steep

#### **Kinross**

Depth class: Very deep

Drainage class: Poorly drained Parent material: Sandy outwash Texture of the surface layer: Muck

Slope: Nearly level

#### Soils of Minor Extent

• Au Gres and Paguin soils in nearly level and gently undulating areas

#### Use and Management

Major use: Forestland

*Management concerns:* Erosion hazard, equipment limitations, seedling mortality, windthrow hazard

Management considerations:

- Building roads on the contour, installing water bars, and seeding logging roads help to prevent excessive soil loss.
- In areas of the Carbondale and Kinross soils, access is easiest during the winter, when the soils have adequate snow cover.
- Year-round logging roads require a gravel base.
- Culverts are needed to maintain the natural drainage system.
- Loose sand can interfere with the traction of logging equipment in areas of the Kalkaska soils.
- Trees are generally not planted in areas of the Carbondale soils because of wetness and seedling mortality.
- Using harvest methods that do not leave the remaining trees widely spaced reduces the windthrow hazard.

# 12. Markey-Deford-Rubicon Association

Very deep, nearly level to steep, very poorly drained to excessively drained, mucky and sandy soils on outwash plains

#### Setting

Landform: Outwash plains Slope range: 0 to 35 percent

# Composition

Extent of the association in the survey area: 2 percent

Extent of the soils in the association: Markey and similar soils: 80 percent Deford and similar soils: 6 percent Rubicon and similar soils: 6 percent Soils of minor extent: 8 percent

#### Soil Properties and Qualities

# Markey

Depth class: Very deep

Drainage class: Very poorly drained

Parent material: Organic deposits over sandy outwash

Texture of the surface layer: Muck

Slope: Nearly level

#### **Deford**

Depth class: Very deep

Drainage class: Poorly drained Parent material: Sandy outwash Texture of the surface layer: Muck

Slope: Nearly level

#### Rubicon

Depth class: Very deep

Drainage class: Excessively drained Parent material: Sandy outwash Texture of the surface layer: Sand Slope: Nearly level to steep

#### Soils of Minor Extent

- · Rousseau and Kalkaska soils on knolls and ridges
- Paquin soils in nearly level and gently undulating areas

#### Use and Management

Major use: Forestland

Management concerns: Equipment limitations, windthrow hazard, seedling mortality

- In areas of the Markey and Deford soils, access is easiest during the winter, when the soils have adequate snow cover.
- Year-round logging roads require a gravel base.
- Culverts are needed to maintain the natural drainage system.
- Using harvest methods that do not leave the remaining trees widely spaced reduces the windthrow hazard.

- Because of wetness and seedling mortality, trees are generally not planted in areas of the Markey and Deford soils.
- Because loose sand can interfere with the traction of wheeled equipment in areas
  of the Rubicon soils, logging roads should be stabilized.
- Planting special nursery stock or containerized seedlings can reduce the seedling mortality rate in areas of the Rubicon soils.

# 13. Kalkaska-Carbondale Association

Very deep, nearly level to very steep, somewhat excessively drained and very poorly drained, sandy and mucky soils on kame terraces and in glacial drainage channels

# Setting

Landform: Kame terraces and glacial drainage channels

Slope range: 0 to 70 percent

### Composition

Extent of the association in the survey area: 7 percent

Extent of the soils in the association: Kalkaska and similar soils: 55 percent Carbondale and similar soils: 20 percent

Soils of minor extent: 25 percent

### Soil Properties and Qualities

#### Kalkaska

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Sandy outwash Texture of the surface layer: Sand Slope: Nearly level to very steep

#### Carbondale

Depth class: Very deep

Drainage class: Very poorly drained Parent material: Organic deposits Texture of the surface layer: Muck

Slope: Nearly level

#### Soils of Minor Extent

- Grand Sable soils in landscape positions similar to those of the Kalkaska soils
- Finch, Jeske, and Paquin soils in nearly level and gently undulating areas
- Deford, Gongeau, and Davies soils in depressions and drainageways

#### Use and Management

Major use: Forestland

Management concerns: Erosion hazard, equipment limitations, seedling mortality, windthrow hazard

- Building roads on the contour, installing water bars, and seeding logging roads help to prevent excessive soil loss.
- Loose sand can interfere with the traction of logging equipment in areas of the Kalkaska soils.
- In areas of the Carbondale soils, access is easiest during the winter, when the soils have adequate snow cover.
- Year-round logging roads require a gravel base.

- Culverts are needed to maintain the natural drainage system.
- Using containerized planting stock helps to minimize seedling mortality in areas of the Kalkaska soils.
- Because of wetness and seedling mortality, trees are generally not planted in areas
  of the Carbondale soils.
- Using harvest methods that do not leave the remaining trees widely spaced reduces the windthrow hazard.

# 14. Rubicon Association

Very deep, nearly level to steep, excessively drained, sandy soils on kame terraces

# Setting

Landform: Kame terraces Slope range: 0 to 35 percent

# Composition

Extent of the association in the survey area: 2 percent

Extent of the soils in the association: Rubicon and similar soils: 85 percent Soils of minor extent: 15 percent

#### Soil Properties and Qualities

#### Rubicon

Depth class: Very deep

Drainage class: Excessively drained Parent material: Sandy outwash Texture of the surface layer: Sand Slope: Nearly level to steep

#### Soils of Minor Extent

- · Croswell soils in nearly level and gently undulating areas
- · Carbondale and Kinross soils in depressions and drainageways

#### Use and Management

Major use: Forestland

Management concerns: Erosion hazard, equipment limitations, seedling mortality Management considerations:

- Building roads on the contour, installing water bars, and seeding logging roads help to prevent excessive soil loss.
- Because loose sand can interfere with the traction of wheeled equipment, logging roads should be stabilized.
- Planting special nursery stock or containerized seedlings can reduce the seedling mortality rate.

# 15. Deer Park Association

Very deep, nearly level to very steep, excessively drained, sandy soils on beach ridges and dunes

#### Setting

Landform: Beach ridges and dunes Slope range: 0 to 60 percent

#### Composition

Extent of the association in the survey area: 3 percent

Extent of the soils in the association:

Deer Park and similar soils: 85 percent
Soils of minor extent: 15 percent

# Soil Properties and Qualities

#### Deer Park

Depth class: Very deep

Drainage class: Excessively drained

Parent material: Sandy beach and dune deposits

Texture of the surface layer: Sand Slope: Nearly level to very steep

#### Soils of Minor Extent

- · Croswell soils in nearly level and gently undulating areas
- · Dawson and Tawas soils in depressions

# Use and Management

Major use: Forestland

Management concerns: Erosion hazard, equipment limitations, seedling mortality Management considerations:

- Loose sand can interfere with the traction of logging equipment.
- · Building roads on the contour helps to control erosion.
- Using containerized planting stock reduces the seedling mortality rate in areas of these droughty soils.

# 16. Chatham-Chippeny-Ruse Association

Shallow to very deep, nearly level to steep, well drained to very poorly drained, loamy and mucky soils in glacial drainage channels

#### Setting

Landform: Glacial drainage channels

Slope range: 0 to 35 percent

#### Composition

Extent of the association in the survey area: 5 percent

Extent of the soils in the association: Chatham and similar soils: 40 percent Chippeny and similar soils: 18 percent Ruse and similar soils: 15 percent Soils of minor extent: 27 percent

# Soil Properties and Qualities

#### Chatham

Depth class: Very deep Drainage class: Well drained

Parent material: Loamy glaciofluvial deposits

Texture of the surface layer: Gravelly fine sandy loam

Slope: Nearly level to steep

#### Chippeny

Depth class: Moderately deep to bedrock Drainage class: Very poorly drained

Parent material: Organic material over loamy deposits

Texture of the surface layer: Muck

Slope: Nearly level

#### Ruse

Depth class: Shallow to bedrock Drainage class: Poorly drained

Parent material: Loamy till over bedrock Texture of the surface layer: Mucky loam Slope: Nearly level and gently sloping

#### Soils of Minor Extent

- Carbondale, Nahma, and Ensley soils in landscape positions similar to those of the Chippeny and Ruse soils
- Ensign, Reade, Shoepac, and Trenary soils in landscape positions similar to those of the Chatham soils

## Use and Management

Major use: Forestland

Management concerns: Equipment limitations, seedling mortality, windthrow hazard Management considerations:

- In areas of the Chippeny and Ruse soils, access is easiest during the winter, when the soils have adequate snow cover.
- · Year-round logging roads require a gravel base.
- · Culverts are needed to maintain the natural drainage system.
- Skidders should not be used in areas of the Chatham soils during wet periods, when ruts form easily.
- Because of wetness and seedling mortality, trees are generally not planted in areas of the Chippeny and Ruse soils.
- Using harvest methods that do not leave the remaining trees widely spaced reduces the windthrow hazard.

# **Detailed Soil Map Units**

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives some of the soil features and properties to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer,

slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Munising fine sandy loam, 1 to 6 percent slopes, is a phase of the Munising series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Map unit 148B, Shoepac-Ensley complex, 0 to 6 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Map unit 57, Carbondale, Lupton, and Tawas soils, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Map unit 61, Pits, sand and gravel, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

### 10—Beaches

 This map unit occurs as areas of sandy material on the shores along Lake Superior. Onsite investigation is needed to determine the suitability for specific uses.

# 11C—Deer Park sand, 0 to 10 percent slopes

#### Setting

Landform: Beach ridges and dunes

### Average Map Unit Composition

90 percent Deer Park and similar soils 5 percent Croswell and similar soils 5 percent Kinross and similar soils

# Description of Major Components

#### **Deer Park**

#### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

A—2 to 3 inches; sand E—3 to 10 inches; sand

#### Soil Survey of Alger County, Michigan

Bs—10 to 21 inches; sand C—21 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Eolian deposits

Slope: 0 to 10 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 11E—Deer Park sand, 10 to 25 percent slopes

# Setting

Landform: Beach ridges and dunes

# Average Map Unit Composition

90 percent Deer Park and similar soils 5 percent Croswell and similar soils 5 percent Kinross and similar soils

### Description of Major Components

#### **Deer Park**

#### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

A—2 to 3 inches; sand E—3 to 10 inches; sand Bs—10 to 21 inches; sand C—21 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Eolian deposits

Slope: 10 to 25 percent
Hazard of soil blowing: Severe
Surface runoff class: Low
Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

# 11F—Deer Park sand, 25 to 60 percent slopes

#### Setting

Landform: Beach ridges and dunes

# Average Map Unit Composition

95 percent Deer Park and similar soils 5 percent Kinross and similar soils

# Description of Major Components

#### **Deer Park**

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

A—2 to 3 inches; sand E—3 to 10 inches; sand Bs—10 to 21 inches; sand C—21 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Eolian deposits

Slope: 25 to 60 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 12B—Rubicon sand, 0 to 6 percent slopes

# Setting

Landform: Outwash plains

### Average Map Unit Composition

90 percent Rubicon and similar soils 5 percent Au Gres and similar soils 5 percent Kinross and similar soils

# **Description of Major Components**

#### Rubicon

# **Typical Profile**

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 7 inches; sand Bs—7 to 32 inches; sand BC—32 to 40 inches; sand C—40 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

# 12D—Rubicon sand, 6 to 15 percent slopes

#### Setting

Landform: Outwash plains

# Average Map Unit Composition

90 percent Rubicon and similar soils 5 percent Au Gres and similar soils 5 percent Kinross and similar soils

# Description of Major Components

#### Rubicon

#### **Typical Profile**

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 7 inches; sand Bs—7 to 32 inches; sand BC—32 to 40 inches; sand C—40 to 80 inches: sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe

#### Soil Survey of Alger County, Michigan

Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

Other uses: Building site development

# 12E—Rubicon sand, 15 to 35 percent slopes

# Setting

Landform: Outwash plains

# Average Map Unit Composition

95 percent Rubicon and similar soils 5 percent Kinross and similar soils

# **Description of Major Components**

#### Rubicon

# **Typical Profile**

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 7 inches; sand Bs—7 to 32 inches; sand BC—32 to 40 inches; sand C—40 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 15 to 35 percent Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

### Land Use

Dominant land use: Forestland

# 13B—Kalkaska sand, 0 to 6 percent slopes

# Setting

Landform: Disintegration moraines; outwash plains

# Average Map Unit Composition

85 percent Kalkaska and similar soils 5 percent Deford and similar soils 5 percent Finch and similar soils 5 percent Paguin and similar soils

# Description of Major Components

#### Kalkaska

#### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits; outwash

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

### Land Use

Dominant land use: Forestland (fig. 3) Other uses: Building site development

# 13D—Kalkaska sand, 6 to 15 percent slopes

# Setting

Landform: Disintegration moraines; outwash plains

#### Average Map Unit Composition

85 percent Kalkaska and similar soils 5 percent Deford and similar soils 5 percent Finch and similar soils 5 percent Paquin and similar soils



Figure 3.—A red pine plantation in an area of Kalkaska sand, 0 to 6 percent slopes. Red pine logs are harvested for use as cabin logs, sawtimber, telephone poles, and plywood.

# Description of Major Components

### Kalkaska

# **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits; outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Severe

#### Soil Survey of Alger County, Michigan

Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

Other uses: Building site development

# 13E—Kalkaska sand, 15 to 35 percent slopes

# Setting

Landform: Disintegration moraines; outwash plains

# Average Map Unit Composition

100 percent Kalkaska and similar soils

# Description of Major Components

#### Kalkaska

#### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits; outwash

Slope: 15 to 35 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

### Land Use

Dominant land use: Forestland

# 15A—Croswell sand, 0 to 3 percent slopes

# Setting

Landform: Lake plains; outwash plains; dunes; stream terraces

# Average Map Unit Composition

90 percent Croswell and similar soils

3 percent Deford and similar soils

3 percent Finch and similar soils

2 percent Au Gres and similar soils

2 percent Kinross and similar soils

# Description of Major Components

#### Croswell

#### **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 6 inches; sand Bs—6 to 15 inches; sand BC—15 to 22 inches; sand C—22 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 3 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)

Ponding: None

### Land Use

Dominant land use: Forestland

Other uses: Building site development

# 16A—Paquin sand, 0 to 3 percent slopes

# Setting

Landform: Outwash plains

#### Average Map Unit Composition

90 percent Paquin and similar soils

3 percent Finch and similar soils

3 percent Garlic and similar soils

2 percent Au Gres and similar soils

2 percent Kinross and similar soils

# Description of Major Components

### **Paquin**

# **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 12 inches; sand Bhs—12 to 14 inches; sand Bhsm—14 to 17 inches; sand Bsm—17 to 27 inches; sand BC—27 to 34 inches; sand C—34 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 3 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 10 to 16 inches to ortstein

Drainage class: Moderately well drained

Available water capacity: About 3.9 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 17A—Au Gres sand, 0 to 3 percent slopes

#### Setting

Landform: Lake plains; outwash plains

# Average Map Unit Composition

90 percent Au Gres and similar soils

3 percent Deford and similar soils

3 percent Paquin and similar soils

2 percent Kinross and similar soils

2 percent Rubicon and similar soils

#### Description of Major Components

# Au Gres

# **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 7 inches; sand Bs—7 to 17 inches; sand BC—17 to 28 inches; sand C—28 to 80 inches; sand

### Soil Survey of Alger County, Michigan

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 3 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat poorly drained

Available water capacity: About 3.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)

Ponding: None

Land Use

Dominant land use: Forestland

# 18—Kinross muck

# Setting

Landform: Lake plains; outwash plains

### Average Map Unit Composition

90 percent Kinross and similar soils 5 percent Au Gres and similar soils 5 percent Dawson and similar soils

# Description of Major Components

#### **Kinross**

#### **Typical Profile**

Oa—0 to 3 inches; muck Eg—3 to 14 inches; sand Bhs—14 to 22 inches; sand Bs—22 to 35 inches; sand C—35 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 2 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

October, November, December)

#### Soil Survey of Alger County, Michigan

Depth and months of deepest ponding: 0.2 foot (March, April, May, October, November)

Months in which ponding does not occur: January, February, June, July, August, September, December

#### Land Use

Dominant land use: Forestland

# 19—Deford muck

# Setting

Landform: Depressions on outwash plains and lake plains

# Average Map Unit Composition

90 percent Deford and similar soils 5 percent Au Gres and similar soils 3 percent Tawas and similar soils 2 percent Paquin and similar soils

# Description of Major Components

#### **Deford**

#### **Typical Profile**

Oa—0 to 4 inches; muck C—4 to 80 inches; fine sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 2 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 5.5 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Wildlife habitat

# 21A—Ingalls sand, 0 to 3 percent slopes

# Setting

Landform: Glacial lakes (relict)

# Average Map Unit Composition

90 percent Ingalls and similar soils

- 3 percent Charlevoix and similar soils
- 3 percent Ensley and similar soils
- 2 percent Au Gres and similar soils
- 2 percent Munising and similar soils

# **Description of Major Components**

# Ingalls

### **Typical Profile**

Oa—0 to 4 inches; highly decomposed plant material

A—4 to 5 inches; sand E—5 to 14 inches; sand Bhs—14 to 16 inches; sand Bs,Bw—16 to 35 inches; sand

2C—35 to 80 inches; stratified silt loam

#### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits over glaciolacustrine deposits

Slope: 0 to 3 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat poorly drained

Available water capacity: About 9.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)

Ponding: None

# Land Use

Dominant land use: Forestland

# 24B—Munising fine sandy loam, 1 to 6 percent slopes

#### Setting

Landform: Ground moraines; end moraines

### Average Map Unit Composition

90 percent Munising and similar soils

- 3 percent Frohling and similar soils
- 2 percent Abbaye and similar soils
- 2 percent Gay and similar soils
- 2 percent Skanee and similar soils
- 1 percent Paavola and similar soils

# **Description of Major Components**

### Munising

# **Typical Profile**

Oe—0 to 1 inch; highly decomposed plant material

A—1 to 2 inches; fine sandy loam E—2 to 10 inches; loamy sand Bhs—10 to 14 inches; sandy loam Bs—14 to 22 inches; sandy loam B/Ex—22 to 49 inches; sandy loam Bt—49 to 63 inches; sandy loam C—63 to 80 inches; sandy loam

# **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 25B—Munising-Yalmer complex, 1 to 6 percent slopes

### Setting

Landform: Ground moraines; end moraines

#### **Average Map Unit Composition**

55 percent Munising and similar soils

30 percent Yalmer and similar soils

5 percent Frohling and similar soils

4 percent Gay and similar soils

3 percent Skanee and similar soils

2 percent Deford and similar soils

1 percent Garlic and similar soils

# Description of Major Components

#### Munising

#### **Typical Profile**

Oe—0 to 1 inch; highly decomposed plant material

A-1 to 2 inches; fine sandy loam

E—2 to 10 inches; loamy sand Bhs—10 to 14 inches; sandy loam Bs—14 to 22 inches; sandy loam B/Ex—22 to 49 inches; sandy loam Bt—49 to 63 inches; sandy loam C—63 to 80 inches; sandy loam

# **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

#### **Yalmer**

#### **Typical Profile**

Oe—0 to 1 inch; highly decomposed plant material

A—1 to 3 inches; sand E—3 to 8 inches; loamy sand Bhs—8 to 11 inches; sand

Bs1,Bs2—11 to 24 inches; fine sand

2E/Bx,2B/Ex—24 to 40 inches; loamy fine sand, fine sandy loam

2Bt—40 to 66 inches; fine sandy loam 2C—66 to 80 inches; fine sandy loam

#### **Soil Properties and Qualities**

Parent material: Sandy outwash over loamy till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1.0 to 2.5 feet (April)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 25D—Munising-Yalmer complex, 6 to 18 percent slopes

# Setting

Landform: Ground moraines; end moraines

# Average Map Unit Composition

55 percent Munising and similar soils 30 percent Yalmer and similar soils 5 percent Frohling and similar soils 4 percent Tokiahok and similar soils 2 percent Deford and similar soils 2 percent Gay and similar soils 2 percent Skanee and similar soils

# Description of Major Components

#### Munising

#### **Typical Profile**

Oe—0 to 1 inch; highly decomposed plant material A—1 to 2 inches; fine sandy loam E—2 to 10 inches; loamy sand Bhs—10 to 14 inches; sandy loam Bs—14 to 22 inches; sandy loam

B/Ex—22 to 49 inches; sandy loam Bt—49 to 63 inches; sandy loam C—63 to 80 inches; sandy loam

#### **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1.0 to 2.5 feet (April)

Ponding: None

#### Yalmer

#### **Typical Profile**

Oe—0 to 1 inch; highly decomposed plant material

A—1 to 3 inches; sand E—3 to 8 inches; loamy sand Bhs—8 to 11 inches; sand

Bs1,Bs2—11 to 24 inches; fine sand

2E/Bx,2B/Ex—24 to 40 inches; loamy fine sand, fine sandy loam

2Bt—40 to 66 inches; fine sandy loam 2C—66 to 80 inches; fine sandy loam

### **Soil Properties and Qualities**

Parent material: Sandy outwash over loamy till

Slope: 6 to 18 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1.0 to 2.5 feet (April)

Ponding: None

Land Use

Dominant land use: Forestland

# 31D—Trenary silt loam, 6 to 15 percent slopes

# Setting

Landform: Recessional moraines; ground moraines

# Average Map Unit Composition

85 percent Trenary and similar soils

4 percent Traunik and similar soils

3 percent Steuben and similar soils

2 percent Charlevoix and similar soils

2 percent Ensley and similar soils

2 percent Escanaba and similar soils

2 percent McMillan and similar soils

#### **Description of Major Components**

### **Trenary**

# **Typical Profile**

A—0 to 2 inches; silt loam
E—2 to 6 inches; silt loam
Bhs—6 to 12 inches; silt loam
Bs—12 to 17 inches; silt loam
E′—17 to 26 inches; sandy loam
Bt—26 to 37 inches; loam
C—37 to 80 inches; sandy loam

# **Soil Properties and Qualities**

Parent material: Till
Slope: 6 to 15 percent
Hazard of soil blowing: Slight
Surface runoff class: Medium
Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 9.3 inches to a depth of 60 inches

#### Soil Survey of Alger County, Michigan

Shrink-swell potential: Moderate Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

Other uses: Pasture

# 33—Ensley muck

### Setting

Landform: Drainageways and depressions on ground moraines

# Average Map Unit Composition

90 percent Ensley and similar soils

3 percent Cathro and similar soils

3 percent Deford and similar soils

2 percent Charlevoix and similar soils

2 percent Shoepac and similar soils

# Description of Major Components

### **Ensley**

# **Typical Profile**

Oa—0 to 5 inches; muck A—5 to 7 inches; mucky loam

Bw-7 to 19 inches; fine sandy loam

2C—19 to 80 inches; gravelly fine sandy loam

#### **Soil Properties and Qualities**

Parent material: Lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 8.3 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

#### Land Use

Dominant land use: Forestland

# 35B—Munising-Yalmer-Frohling complex, calcareous substratum, 1 to 6 percent slopes

# Setting

Landform: Ground moraines

# Average Map Unit Composition

40 percent Munising and similar soils 30 percent Yalmer and similar soils 20 percent Frohling and similar soils 3 percent Ensley and similar soils 3 percent Greylock and similar soils 2 percent Cookson and similar soils 2 percent McMillan and similar soils

# **Description of Major Components**

#### Munising

# **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material E—1 to 3 inches; fine sandy loam Bhs—3 to 6 inches; fine sandy loam Bs—6 to 23 inches; fine sandy loam

2E/Bx—23 to 38 inches; loamy sand, fine sandy loam 2B/Ex—38 to 50 inches; fine sandy loam, loamy sand 2BC—50 to 63 inches; gravelly fine sandy loam 2C—63 to 80 inches; gravelly fine sandy loam

# **Soil Properties and Qualities**

Parent material: Eolian deposits over lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

# Yalmer

# **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 2 inches; loamy sand

E—2 to 5 inches; sand

Bhs—5 to 16 inches; loamy sand

Bs—16 to 28 inches; gravelly loamy sand 2E/Bx—28 to 36 inches; loamy sand 2B/Ex—36 to 62 inches; fine sandy loam 3C—62 to 80 inches; gravelly fine sandy loam

#### **Soil Properties and Qualities**

Parent material: Outwash over lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1.0 to 2.5 feet (April)

Ponding: None

#### Frohling

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 5 inches; fine sandy loam Bs—5 to 24 inches; fine sandy loam

2E/Bx,2B/Ex—24 to 73 inches; fine sandy loam, loamy fine sand

3C—73 to 80 inches; gravelly fine sandy loam

### **Soil Properties and Qualities**

Parent material: Eolian deposits over lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 4.6 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 37B—Grand Sable fine sand, 1 to 6 percent slopes

### Setting

Landform: Kame terraces

### Average Map Unit Composition

90 percent Grand Sable and similar soils 2 percent Chabeneau and similar soils

2 percent Cusino and similar soils

2 percent Deerton and similar soils

2 percent Shelldrake and similar soils2 percent Towes and similar soils

# Description of Major Components

#### **Grand Sable**

#### **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; fine sand

C1,C2,C3—4 to 30 inches; loamy fine sand

2Eb-30 to 32 inches; sand

2Bsb1,2Bsb2—32 to 43 inches; sand 2BCb,2Cb—43 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Sandy eolian deposits over sandy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 37E—Grand Sable fine sand, 15 to 35 percent slopes

# Setting

Landform: Kame terraces

# Average Map Unit Composition

98 percent Grand Sable and similar soils 1 percent Deerton and similar soils 1 percent Halfaday and similar soils

#### Description of Major Components

# **Grand Sable**

# **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; fine sand

C1,C2,C3—4 to 30 inches; loamy fine sand

2Eb-30 to 32 inches; sand

2Bsb1,2Bsb2—32 to 43 inches; sand 2BCb,2Cb—43 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy eolian deposits over sandy outwash

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

## 38B—Rhody-Towes complex, 0 to 4 percent slopes

## Setting

Landform: Terraces in glacial drainage channels

## Average Map Unit Composition

60 percent Rhody and similar soils

30 percent Towes and similar soils

3 percent Nykanen and similar soils

3 percent Trout Bay and similar soils

2 percent Au Train and similar soils

2 percent Deerton and similar soils

#### Description of Major Components

#### Rhody

## **Typical Profile**

A,A/E—0 to 19 inches; silt loam, muck C1,C2—19 to 36 inches; gravelly sand 3Cr—36 to 41 inches; weathered bedrock 3R—41 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Silty eolian deposits over sandy outwash

Slope: 0 to 2 percent

Hazard of soil blowing: Slight Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 50 inches to

lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October, November)

Months in which ponding does not occur: January, February, June, July, August, September, December

#### **Towes**

## **Typical Profile**

A1,A2—0 to 19 inches; silt loam 2Bw—19 to 22 inches; gravelly sand

2C-22 to 26 inches; sand

3Cr—26 to 37 inches; weathered bedrock 3R—37 inches; unweathered bedrock

### **Soil Properties and Qualities**

Parent material: Silty eolian deposits over sandy outwash

Slope: 0 to 4 percent Hazard of soil blowing: Slight Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 20 to 30 inches to paralithic bedrock; 20 to 45 inches to

lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 4.8 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 0.5 foot to 2.2 feet (May)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 40B—Waiska cobbly loamy sand, 0 to 6 percent slopes, very stony

#### Setting

Landform: Outwash plains; stream terraces; benches

## Average Map Unit Composition

90 percent Waiska and similar soils

3 percent Cusino and similar soils

3 percent Paavola and similar soils

2 percent Deford and similar soils

2 percent Kalkaska and similar soils

#### **Description of Major Components**

#### Waiska

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 4 inches; cobbly loamy sand

Bhs—4 to 8 inches; gravelly sand Bs—8 to 18 inches; very gravelly sand BC,C—18 to 80 inches; very gravelly sand

## **Soil Properties and Qualities**

Parent material: Sandy and gravelly outwash

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 1.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 42—Davies very cobbly muck

## Setting

Landform: Glacial drainage channels; kame terraces

## Average Map Unit Composition

90 percent Davies and similar soils 5 percent McMaster and similar soils 5 percent Tawas and similar soils

## Description of Major Components

## **Davies**

## **Typical Profile**

Oa—0 to 4 inches; very cobbly muck Bg—4 to 11 inches; very cobbly sandy loam C1,C2—11 to 80 inches; very cobbly sand

## **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 3.5 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October, November)

Months in which ponding does not occur: January, February, June, July, August, September, December

#### Land Use

Dominant land use: Forestland

## 46—Jacobsville muck, very stony

## Setting

Landform: Benches; ground moraines

## **Average Map Unit Composition**

90 percent Jacobsville and similar soils

3 percent Gay and similar soils

3 percent Munising and similar soils

2 percent Chocolay and similar soils

2 percent Zeba and similar soils

## Description of Major Components

#### Jacobsville

## **Typical Profile**

Oa—0 to 5 inches; muck E—5 to 9 inches; sandy loam Bw—9 to 23 inches; sandy loam C—23 to 36 inches; sandy loam 2R—36 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 0 to 2 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 6.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October, November) Months in which ponding does not occur: January, February, June, July, August, September, December

## Land Use

Dominant land use: Forestland

# 47C—Deerton-Au Train complex, 1 to 15 percent slopes Setting

Landform: Moraines; benches

## Average Map Unit Composition

55 percent Deerton and similar soils 30 percent Au Train and similar soils 5 percent Abbaye and similar soils 5 percent Jeske and similar soils 3 percent Gongeau and similar soils 2 percent Trout Bay and similar soils

## Description of Major Components

#### **Deerton**

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 9 inches; sand Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand

2Cr—25 to 39 inches; weathered bedrock 2R—39 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over sandy residuum

Slope: 4 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 2.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Au Train

#### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 9 inches; coarse sand Bhs—9 to 14 inches; coarse sand Cr—14 to 32 inches; weathered bedrock R—32 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits and sandy residuum

Slope: 1 to 12 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible

Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 1.4 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.7 feet (April, November)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 47E—Deerton-Au Train complex, 6 to 35 percent slopes

Setting

Landform: Moraines

## Average Map Unit Composition

55 percent Deerton and similar soils

30 percent Au Train and similar soils

4 percent Abbaye and similar soils

4 percent Gongeau and similar soils

4 percent Jeske and similar soils

3 percent Trout Bay and similar soils

## Description of Major Components

#### Deerton

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 9 inches; sand Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand

2Cr—25 to 39 inches; weathered bedrock 2R—39 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over sandy residuum

Slope: 6 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 2.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Au Train

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 9 inches; coarse sand
Bhs—9 to 14 inches; coarse sand
Cr—14 to 32 inches; weathered bedrock
R—32 inches; unweathered bedrock

### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits and sandy residuum

Slope: 6 to 18 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 1.4 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.7 feet (April, November)

Ponding: None

#### Land Use

Dominant land use: Forestland

## 48—Burt muck

## Setting

Landform: Depressions and drainageways on ground moraines

## Average Map Unit Composition

90 percent Burt and similar soils

3 percent Sauxhead and similar soils

3 percent Skandia and similar soils

2 percent Jacobsville and similar soils

2 percent Levasseur and similar soils

## Description of Major Components

#### Burt

#### **Typical Profile**

Oa—0 to 1 inch; muck
A—1 to 5 inches; mucky sand
Cg,C—5 to 19 inches; sand
2R—19 inches: bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 2 percent

Hazard of soil blowing: Slight

Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 1.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

# 49B—Cookson fine sandy loam, 1 to 6 percent slopes Setting

Landform: Ground moraines

## Average Map Unit Composition

90 percent Cookson and similar soils

5 percent Chatham and similar soils

3 percent Trenary and similar soils

2 percent Reade and similar soils

## **Description of Major Components**

#### Cookson

#### **Typical Profile**

Oi—0 to 3 inches; slightly decomposed plant material

E—3 to 7 inches; fine sandy loam Bhs—7 to 11 inches; fine sandy loam Bs—11 to 16 inches; sandy loam 2E—16 to 21 inches; fine sandy loam 2Bt—21 to 31 inches; fine sandy loam 2BC—31 to 36 inches; fine sandy loam

3R—36 inches; bedrock

### **Soil Properties and Qualities**

Parent material: Coarse-loamy till

Slope: 1 to 6 percent

Hazard of soil blowing: Slight Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 51—Nahma-Ruse complex

## Setting

Landform: Depressions on ground moraines

## Average Map Unit Composition

50 percent Nahma and similar soils

40 percent Ruse and similar soils

5 percent Chippeny and similar soils

3 percent Ensign and similar soils

2 percent Nykanen and similar soils

## Description of Major Components

#### Nahma

### **Typical Profile**

Oa—0 to 9 inches; muck

Bg—9 to 14 inches; fine sandy loam Bw1—14 to 19 inches; fine sandy loam Bw2—19 to 22 inches; fine sandy loam 2BC—22 to 25 inches; fine sandy loam 2C—25 to 30 inches; fine sandy loam

3R-30 inches; bedrock

#### **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 7.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August, September, December

#### Ruse

## **Typical Profile**

A—0 to 7 inches; mucky silt loam Bg—7 to 11 inches; fine sandy loam

Bw—11 to 15 inches; fine sandy loam

R—15 inches; bedrock

## **Soil Properties and Qualities**

Parent material: Loamy till Slope: 0 to 2 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: 4 to 20 inches to lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 2.3 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

# 52B—Summerville fine sandy loam, 1 to 6 percent slopes Setting

Landform: Ground moraines

#### Average Map Unit Composition

85 percent Summerville and similar soils

4 percent Longrie and similar soils

3 percent Ensign and similar soils

3 percent Ruse and similar soils

3 percent Traunik and similar soils

2 percent Namur and similar soils

#### Description of Major Components

### Summerville

#### **Typical Profile**

A—0 to 3 inches; fine sandy loam

Bw1,Bw2—3 to 13 inches; fine sandy loam 2R—13 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Loamy till Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Available water capacity: About 2.3 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

## 57—Carbondale, Lupton, and Tawas soils

## Setting

Landform: Ground moraines; lake plains; outwash plains

## Average Map Unit Composition

0 to 100 percent Carbondale and similar soils

0 to 100 percent Lupton and similar soils

0 to 100 percent Tawas and similar soils

0 to 5 percent Deford and similar soils

0 to 4 percent Paquin and similar soils

0 to 1 percent Kalkaska and similar soils

## Description of Major Components

#### Carbondale

#### **Typical Profile**

Oa—0 to 38 inches; muck

Oe—38 to 80 inches; mucky peat

#### **Soil Properties and Qualities**

Parent material: Herbaceous material

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 26.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

#### Lupton

## **Typical Profile**

Oi—0 to 4 inches; peat Oa—4 to 80 inches; muck

## **Soil Properties and Qualities**

Parent material: Woody material

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 24.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

#### **Tawas**

## **Typical Profile**

Oa—0 to 26 inches; muck 2C—26 to 80 inches; sand

## Soil Properties and Qualities

Parent material: Woody material over drift

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 13.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

## Land Use

Dominant land use: Forestland

## 58—Dawson, Greenwood, and Loxley soils

#### Setting

Landform: Lake plains; outwash plains; ground moraines

## **Average Map Unit Composition**

0 to 100 percent Dawson and similar soils

0 to 100 percent Greenwood and similar soils

0 to 100 percent Loxley and similar soils

0 to 5 percent Spot and similar soils

0 to 4 percent Finch and similar soils

0 to 1 percent Paquin and similar soils

## **Description of Major Components**

#### Dawson

## **Typical Profile**

Oi—0 to 10 inches; peat

Oe—10 to 19 inches; mucky peat Oa—19 to 38 inches; muck C—38 to 80 inches; fine sand

#### **Soil Properties and Qualities**

Parent material: Herbaceous material over sandy glaciofluvial deposits

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 19.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, September, October, November, December)

Depth and months of deepest ponding: 0.5 foot (April, May)

Months in which ponding does not occur: July, August, September

#### Greenwood

#### **Typical Profile**

Oe—0 to 65 inches; mucky peat Oa—65 to 80 inches; muck

## **Soil Properties and Qualities**

Parent material: Herbaceous material

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 29.9 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, September, October, November, December)

Depth and months of deepest ponding: 0.5 foot (April, May)

Months in which ponding does not occur: July, August, September

## Loxley

## **Typical Profile**

Oi—0 to 8 inches; peat Oa—8 to 80 inches; muck

## **Soil Properties and Qualities**

Parent material: Herbaceous material

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 25.5 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, September, October, November, December)

Depth and months of deepest ponding: 0.5 foot (April, May, November) Months in which ponding does not occur: July, August, September

#### Land Use

Dominant land use: Wildlife habitat

## 59—Chippeny-Nahma mucks

#### Settina

Landform: Depressions on ground moraines, till plains, and benches and in glacial drainage channels

## **Average Map Unit Composition**

55 percent Chippeny and similar soils

30 percent Nahma and similar soils

5 percent Carbondale and similar soils

5 percent Ruse and similar soils

3 percent Ensign and similar soils

2 percent Nykanen and similar soils

## **Description of Major Components**

## Chippeny

## **Typical Profile**

Oa—0 to 20 inches; muck

2Cg—20 to 28 inches; silty clay loam

3R-28 inches; bedrock

## **Soil Properties and Qualities**

Parent material: Woody material

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 9.6 inches to a depth of 60 inches

Shrink-swell potential: High Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Nahma

### **Typical Profile**

Oa—0 to 9 inches; muck

Bg—9 to 14 inches; fine sandy loam Bw1—14 to 19 inches; fine sandy loam Bw2—19 to 22 inches; fine sandy loam 2BC—22 to 25 inches; fine sandy loam 2C—25 to 30 inches; fine sandy loam

3R-30 inches; bedrock

## **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 7.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

## Land Use

Dominant land use: Cropland Other uses: Forestland

## 60—Histosols and Aquents, ponded

## Average Map Unit Composition

0 to 100 percent Histosols and similar soils 0 to 100 percent Aquents and similar soils

## **Description of Major Components**

#### **Histosols**

## **Typical Profile**

Oa1—0 to 51 inches; muck
Oa2—51 to 80 inches; variable

## **Soil Properties and Qualities**

Parent material: Organic material

Slope: 0 to 2 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained Shrink-swell potential: Not estimated

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: At the surface (all year)

Ponding depth: 1 foot (all year)

## **Aquents**

## **Typical Profile**

C—0 to 80 inches; variable

#### **Soil Properties and Qualities**

Slope: 0 to 2 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained Shrink-swell potential: Not estimated Permeability: Moderately slow or moderate

Flooding: None

Depth to seasonal high water table: At the surface (all year)

Ponding depth: 1 foot (all year)

## 61—Pits, sand and gravel

• This map unit consists of areas from which sand and gravel have been removed.

Onsite investigation is needed to determine the suitability for specific uses.

# 62F—Udipsamments and Udorthents, nearly level to very steep

## **Average Map Unit Composition**

0 to 100 percent Udipsamments 0 to 100 percent Udorthents

#### Land Use

Onsite investigation is needed to determine the suitability for specific uses.

## 64B—Kiva fine sandy loam, 1 to 6 percent slopes

## Setting

Landform: Outwash plains

## Average Map Unit Composition

90 percent Kiva and similar soils

- 4 percent Islandlake and similar soils
- 2 percent Davies and similar soils
- 2 percent Fence and similar soils
- 2 percent McMaster and similar soils

## **Description of Major Components**

#### Kiva

## **Typical Profile**

A—0 to 3 inches; fine sandy loam E—3 to 6 inches; loamy sand

Bs1—6 to 15 inches; fine sandy loam

2Bs2—15 to 23 inches; gravelly loamy sand

2BC,2C—23 to 80 inches; stratified sand to very gravelly sand to gravelly sand

#### **Soil Properties and Qualities**

Parent material: Loamy eolian deposits over sandy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

## 64D—Kiva fine sandy loam, 6 to 15 percent slopes

## Setting

Landform: Outwash plains

## Average Map Unit Composition

90 percent Kiva and similar soils 3 percent Islandlake and similar soils 3 percent Kalkaska and similar soils 2 percent McMaster and similar soils 2 percent Steuben and similar soils

## **Description of Major Components**

#### Kiva

### **Typical Profile**

A—0 to 3 inches; fine sandy loam E—3 to 6 inches; loamy sand Bs1—6 to 15 inches; fine sandy loam 2Bs2—15 to 23 inches; gravelly loamy sand

2BC,2C-23 to 80 inches; stratified sand to very gravelly sand to gravelly sand

## Soil Properties and Qualities

Parent material: Loamy eolian deposits over sandy outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

# 65D—Jeske-Gongeau-Deerton complex, bedrock terrace, 1 to 20 percent slopes

## Setting

Landform: Moraines

## Average Map Unit Composition

45 percent Jeske and similar soils 25 percent Gongeau and similar soils 20 percent Deerton and similar soils 5 percent Au Train and similar soils 3 percent Abbaye and similar soils 2 percent Trout Bay and similar soils

## Description of Major Components

#### **Jeske**

### **Typical Profile**

Oe,Oa—0 to 3 inches; highly decomposed plant material

C1,C2—3 to 21 inches; sand

2Cr—21 to 31 inches; weathered bedrock 2R—31 inches; unweathered bedrock

### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits and sandy residuum

Slope: 1 to 10 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: 10 to 23 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 2.5 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (April)

Ponding: None

## Gongeau

## **Typical Profile**

Oa—0 to 5 inches; muck

A-5 to 7 inches; mucky loamy sand

2C—7 to 18 inches; sand

2Cr—18 to 29 inches; weathered bedrock 2R—29 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 1 to 3 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 30 inches to

lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August, September, December

#### Deerton

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 9 inches; sand Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand

2Cr—25 to 39 inches; weathered bedrock 2R—39 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over sandy residuum

Slope: 6 to 20 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 2.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 65F—Jeske-Gongeau-Deerton complex, bedrock terrace, 1 to 45 percent slopes

## Setting

Landform: Moraines

#### Average Map Unit Composition

45 percent Jeske and similar soils

25 percent Gongeau and similar soils

20 percent Deerton and similar soils

5 percent Au Train and similar soils

3 percent Abbaye and similar soils

2 percent Trout Bay and similar soils

## Description of Major Components

#### **Jeske**

#### **Typical Profile**

Oe,Oa—0 to 3 inches; highly decomposed plant material

C1,C2—3 to 21 inches; sand

2Cr—21 to 31 inches; weathered bedrock 2R—31 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits and sandy residuum

Slope: 1 to 10 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: 10 to 23 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 2.5 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (April)

Ponding: None

## Gongeau

## **Typical Profile**

Oa—0 to 5 inches; muck

A-5 to 7 inches; mucky loamy sand

2C-7 to 18 inches; sand

2Cr—18 to 29 inches; weathered bedrock 2R—29 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 1 to 8 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 30 inches to

lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Deerton

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 9 inches; sand Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand

2Cr-25 to 39 inches; weathered bedrock 2R—39 inches: unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over sandy residuum

Slope: 6 to 45 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 2.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 66D—Ruse-Ensign-Nykanen complex, bedrock terrace, 1 to 20 percent slopes

## Setting

Landform: Glacial drainage channels

## Average Map Unit Composition

40 percent Ruse and similar soils

30 percent Ensign and similar soils

20 percent Nykanen and similar soils

4 percent Summerville and similar soils

3 percent Chippeny and similar soils

3 percent Eben and similar soils

## Description of Major Components

#### Ruse

#### **Typical Profile**

Ap-0 to 10 inches; mucky silt loam AC-10 to 13 inches; silt loam

2Cr-13 to 19 inches; weathered bedrock

2R—19 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Loamy outwash

Slope: 1 to 4 percent

Hazard of soil blowing: Slight Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to

lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 3 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Ensign

## **Typical Profile**

Ap—0 to 10 inches; very fine sandy loam BA—10 to 14 inches; very fine sandy loam 2Cr—14 to 18 inches; weathered bedrock 2R—18 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Loamy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to

lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 2.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 0.5 foot to 1.2 feet (May)

Ponding: None

#### Nykanen

## **Typical Profile**

A—0 to 4 inches; very fine sandy loam BA—4 to 14 inches; very fine sandy loam 2Cr—14 to 25 inches; weathered bedrock 2R—25 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Loamy outwash

Slope: 6 to 20 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 32 inches to

lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 2.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 1.2 feet (April, July, October)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 66F—Ruse-Ensign-Nykanen complex, bedrock terrace, 1 to 45 percent slopes

## Setting

Landform: Glacial drainage channels

## Average Map Unit Composition

40 percent Ruse and similar soils

30 percent Ensign and similar soils

20 percent Nykanen and similar soils

3 percent Namur and similar soils

3 percent Summerville and similar soils

2 percent Chippeny and similar soils

2 percent Deerton and similar soils

## **Description of Major Components**

#### Ruse

## **Typical Profile**

Ap—0 to 10 inches; mucky silt loam AC—10 to 13 inches; silt loam

2Cr—13 to 19 inches; weathered bedrock 2R—19 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Loamy outwash

Slope: 1 to 4 percent

Hazard of soil blowing: Slight Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to

lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 3 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August, September, December

## **Ensign**

## **Typical Profile**

Ap—0 to 10 inches; very fine sandy loam BA—10 to 14 inches; very fine sandy loam 2Cr—14 to 18 inches; weathered bedrock 2R—18 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Loamy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to

lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 2.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 0.5 foot to 1.2 feet (May)

Ponding: None

## Nykanen

## **Typical Profile**

A—0 to 4 inches; very fine sandy loam BA—4 to 14 inches; very fine sandy loam 2Cr—14 to 25 inches; weathered bedrock 2R—25 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Loamy outwash

Slope: 6 to 45 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 32 inches to

lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 2.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 1.2 feet (April, July, October)

Ponding: None

## Land Use

Dominant land use: Forestland

Other uses: Pasture

## 68—Pits, quarry

 This map unit consists of areas from which material has been removed for use in construction. Onsite investigation is needed to determine the suitability for specific uses.

## 69B—Escanaba sand, 1 to 6 percent slopes

## Setting

Landform: Ground moraines

## Average Map Unit Composition

85 percent Escanaba and similar soils 5 percent Blue Lake and similar soils 5 percent Yalmer and similar soils 3 percent Greylock and similar soils 2 percent Kalkaska and similar soils

## Description of Major Components

#### Escanaba

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A-1 to 3 inches; sand

E-3 to 6 inches; loamy fine sand

Bs1,Bs2—6 to 26 inches; loamy fine sand 2E/B—26 to 35 inches; fine sandy loam 2Bt—35 to 42 inches; fine sandy loam 2C—42 to 80 inches; gravelly fine sandy loam

#### **Soil Properties and Qualities**

Parent material: Sandy outwash over loamy lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 6.9 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 71A—Evart-Sturgeon silt loams, 0 to 2 percent slopes, frequently flooded

## Setting

Landform: Flood plains

## Average Map Unit Composition

70 percent Evart and similar soils 20 percent Sturgeon and similar soils 5 percent Pelkie and similar soils 5 percent Tawas and similar soils

## Description of Major Components

#### **Evart**

### **Typical Profile**

A1—0 to 10 inches; silt loam

A2—10 to 18 inches; loamy fine sand Cg1,Cg2—18 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Alluvium Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 5.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid

Frequency of flooding: Frequent (April, May)

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

## Sturgeon

#### **Typical Profile**

A—0 to 6 inches; silt loam Bw—6 to 16 inches; silt loam

2C1,2C2—16 to 80 inches; fine sand

## **Soil Properties and Qualities**

Parent material: Alluvium Slope: 0 to 2 percent

Hazard of soil blowing: Slight Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat poorly drained

Available water capacity: About 6.3 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Frequency of flooding: Frequent (April, May)

Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 72E—Deerton-Tokiahok-Trout Bay complex, 8 to 35 percent slopes, dissected

## Setting

Landform: Moraines

## **Average Map Unit Composition**

40 percent Deerton and similar soils

30 percent Tokiahok and similar soils

15 percent Trout Bay and similar soils

3 percent Au Train and similar soils

3 percent Frohling and similar soils

3 percent Gongeau and similar soils

2 percent Abbaye and similar soils

2 percent Jeske and similar soils

2 percent Munising and similar soils

## Description of Major Components

#### Deerton

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 9 inches; sand Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand

2Cr—25 to 39 inches; weathered bedrock 2R—39 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over sandy residuum

Slope: 8 to 35 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 2.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Tokiahok**

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 11 inches; loamy fine sand Bhs—11 to 15 inches; loamy fine sand Bs—15 to 24 inches; loamy fine sand 2E/Bx,2B/Ex—24 to 59 inches; sandy loam 2BC,2C—59 to 80 inches; sandy loam

## **Soil Properties and Qualities**

Parent material: Sandy outwash over loamy till

Slope: 8 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

### **Trout Bay**

## **Typical Profile**

Oa—0 to 19 inches; muck

2Cr—19 to 34 inches; weathered bedrock 2R—34 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Herbaceous and woody material

Slope: 8 to 25 percent Hazard of soil blowing: Slight Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 16 to 50 inches to paralithic bedrock; 17 to 51 inches to

lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 7.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Ponding: None

## Land Use

Dominant land use: Forestland

# 72F—Deerton-Tokiahok-Trout Bay complex, 15 to 70 percent slopes, dissected

## Setting

Landform: Moraines

## **Average Map Unit Composition**

40 percent Deerton and similar soils 25 percent Tokiahok and similar soils 20 percent Trout Bay and similar soils 3 percent Frohling and similar soils 3 percent Gongeau and similar soils 3 percent Jeske and similar soils 2 percent Abbaye and similar soils 2 percent Au Train and similar soils 2 percent Munising and similar soils

## Description of Major Components

#### Deerton

### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material E—1 to 9 inches; sand

Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand

2Cr—25 to 39 inches; weathered bedrock 2R—39 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over sandy residuum

Slope: 15 to 70 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 2.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## **Tokiahok**

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 11 inches; loamy fine sand Bhs—11 to 15 inches; loamy fine sand Bs—15 to 24 inches; loamy fine sand 2E/Bx,2B/Ex—24 to 59 inches; sandy loam 2BC,2C—59 to 80 inches; sandy loam

## **Soil Properties and Qualities**

Parent material: Sandy outwash over loamy till

Slope: 15 to 70 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

### **Trout Bay**

### **Typical Profile**

Oa—0 to 19 inches; muck

2Cr—19 to 34 inches; weathered bedrock 2R—34 inches; unweathered bedrock

### **Soil Properties and Qualities**

Parent material: Herbaceous and woody material

Slope: 15 to 25 percent Hazard of soil blowing: Slight Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 16 to 50 inches to paralithic bedrock; 17 to 51 inches to

lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 7.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 76C—Garlic-Blue Lake-Voelker complex, 1 to 12 percent slopes, dissected

## Setting

Landform: Disintegration moraines

## **Average Map Unit Composition**

40 percent Garlic and similar soils

30 percent Blue Lake and similar soils

20 percent Voelker and similar soils

3 percent Fence and similar soils

- 2 percent Deford and similar soils
- 2 percent Munising and similar soils
- 2 percent Paquin and similar soils
- 1 percent Steuben and similar soils

## Description of Major Components

#### Garlic

## **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 11 inches; sand Bs—11 to 20 inches; sand BC—20 to 29 inches; sand C—29 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits

Slope: 1 to 12 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Blue Lake**

## Typical Profile

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand

E/B,E and B-27 to 80 inches; loamy sand

#### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Voelker

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 5 inches; fine sand E—5 to 11 inches; fine sand Bhs—11 to 15 inches; fine sand Bhsm—15 to 31 inches; fine sand

2E/B—31 to 39 inches; loamy very fine sand 2C1,2C2—39 to 80 inches; loamy very fine sand

## Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits over loamy lacustrine deposits

Slope: 1 to 12 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to ortstein

Drainage class: Well drained

Available water capacity: About 6.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 76E—Garlic-Blue Lake-Voelker complex, 8 to 35 percent slopes, dissected

#### Setting

Landform: Disintegration moraines

## Average Map Unit Composition

40 percent Garlic and similar soils

30 percent Blue Lake and similar soils

20 percent Voelker and similar soils

3 percent Fence and similar soils

3 percent Steuben and similar soils

2 percent Alcona and similar soils

2 percent Deford and similar soils

## Description of Major Components

#### Garlic

#### **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 11 inches; sand Bs—11 to 20 inches; sand BC—20 to 29 inches; sand C1,C2—29 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits

Slope: 8 to 35 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Blue Lake

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand

E/B,E and B-27 to 80 inches; loamy sand

### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 8 to 35 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Voelker

### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 5 inches; fine sand E—5 to 11 inches; fine sand Bhs—11 to 15 inches; fine sand Bhsm—15 to 31 inches; fine sand

2E/B—31 to 39 inches; loamy very fine sand 2C1,2C2—39 to 80 inches; loamy very fine sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over loamy lacustrine deposits

Slope: 8 to 35 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to ortstein

Drainage class: Well drained

Available water capacity: About 6.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

# 76F—Garlic-Blue Lake-Voelker complex, 15 to 60 percent slopes, dissected

## Setting

Landform: Disintegration moraines

## Average Map Unit Composition

40 percent Garlic and similar soils

30 percent Blue Lake and similar soils

20 percent Voelker and similar soils

4 percent Steuben and similar soils

3 percent Sporley and similar soils

2 percent Deford and similar soils

1 percent Paquin and similar soils

#### **Description of Major Components**

#### Garlic

## **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 11 inches; sand Bs—11 to 20 inches; sand BC—20 to 29 inches; sand C1,C2—29 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits

Slope: 15 to 60 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Blue Lake

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand

E/B,E and B-27 to 80 inches; loamy sand

## Soil Properties and Qualities

Parent material: Sandy till (supraglacial)

Slope: 15 to 60 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Voelker

### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 5 inches; fine sand E—5 to 11 inches; fine sand Bhs—11 to 15 inches; fine sand Bhsm—15 to 31 inches; fine sand

2E/B—31 to 39 inches; loamy very fine sand 2C1,2C2—39 to 80 inches; loamy very fine sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over loamy lacustrine deposits

Slope: 15 to 60 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to ortstein

Drainage class: Well drained

Available water capacity: About 6.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

# 77B—Garlic-Blue Lake-Voelker complex, 1 to 6 percent slopes

# Setting

Landform: Disintegration moraines; ground moraines

# **Average Map Unit Composition**

40 percent Garlic and similar soils

30 percent Blue Lake and similar soils

20 percent Voelker and similar soils

4 percent Alcona and similar soils

3 percent McMillan and similar soils

2 percent Deford and similar soils

1 percent Paquin and similar soils

# Description of Major Components

#### Garlic

# **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 11 inches; sand Bs—11 to 20 inches; sand BC—20 to 29 inches; sand C—29 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits

Slope: 1 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

# **Blue Lake**

### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand

E/B,E and B—27 to 80 inches; loamy sand

#### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Voelker

# **Typical Profile**

Oa-0 to 1 inch; highly decomposed plant material

A—1 to 5 inches; fine sand E—5 to 11 inches; fine sand Bhs—11 to 15 inches; fine sand Bhsm—15 to 31 inches; fine sand

2E/B—31 to 39 inches; loamy very fine sand 2C1,2C2—39 to 80 inches; loamy very fine sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over loamy lacustrine deposits

Slope: 1 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to ortstein

Drainage class: Well drained

Available water capacity: About 6.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

# Land Use

Dominant land use: Forestland

# 77D—Garlic-Blue Lake-Voelker complex, 6 to 15 percent slopes

# Setting

Landform: Disintegration moraines; ground moraines

# Average Map Unit Composition

40 percent Garlic and similar soils

30 percent Blue Lake and similar soils

20 percent Voelker and similar soils

3 percent Alcona and similar soils

3 percent McMillan and similar soils

2 percent Deford and similar soils2 percent Paquin and similar soils

# **Description of Major Components**

#### Garlic

# **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 11 inches; sand Bs—11 to 20 inches; sand BC—20 to 29 inches; sand C—29 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## **Blue Lake**

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand

E/B,E and B—27 to 80 inches; loamy sand

# **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Voelker

# **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 5 inches; fine sand E—5 to 11 inches; fine sand Bhs—11 to 15 inches; fine sand Bhsm—15 to 31 inches; fine sand

2E/B—31 to 39 inches; loamy very fine sand 2C1,2C2—39 to 80 inches; loamy very fine sand

# Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits over loamy lacustrine deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to ortstein

Drainage class: Well drained

Available water capacity: About 6.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

# 77E—Garlic-Blue Lake-Voelker complex, 15 to 35 percent slopes

## Setting

Landform: Disintegration moraines; ground moraines

# Average Map Unit Composition

40 percent Garlic and similar soils

30 percent Blue Lake and similar soils

20 percent Voelker and similar soils

4 percent Alcona and similar soils

3 percent McMillan and similar soils

2 percent Deford and similar soils

1 percent Paquin and similar soils

# Description of Major Components

#### Garlic

## **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 11 inches; sand Bs—11 to 20 inches; sand BC—20 to 29 inches; sand C1.C2—29 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits

Slope: 15 to 35 percent Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Blue Lake

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand

E/B,E and B-27 to 80 inches; loamy sand

## **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

### Voelker

# **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 5 inches; fine sand E—5 to 11 inches; fine sand Bhs—11 to 15 inches; fine sand Bhsm—15 to 31 inches; fine sand

2E/B—31 to 39 inches; loamy very fine sand 2C1,2C2—39 to 80 inches; loamy very fine sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over loamy lacustrine deposits

Slope: 15 to 35 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to ortstein

Drainage class: Well drained

Available water capacity: About 6.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

# 88—Cathro-Ensley mucks

# Setting

Landform: Depressions and drainageways on ground moraines

# Average Map Unit Composition

55 percent Cathro and similar soils

35 percent Ensley and similar soils

4 percent Charlevoix and similar soils

2 percent Nahma and similar soils

2 percent Shoepac and similar soils

2 percent Trenary and similar soils

# Description of Major Components

#### Cathro

### **Typical Profile**

Oa1,Oa2,Oa3—0 to 34 inches; muck

C1,C2—34 to 80 inches; gravelly fine sandy loam

## **Soil Properties and Qualities**

Parent material: Woody material over lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 16.7 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

# **Ensley**

# **Typical Profile**

Oa—0 to 5 inches; muck A—5 to 7 inches; mucky loam Bw—7 to 19 inches; fine sandy loam

2C—19 to 80 inches; gravelly fine sandy loam

# **Soil Properties and Qualities**

Parent material: Lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 8.3 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

## Land Use

Dominant land use: Forestland

# 93—Tawas-Deford mucks

#### Setting

Landform: Depressions and drainageways on moraines and outwash plains

# Average Map Unit Composition

70 percent Tawas and similar soils

20 percent Deford and similar soils

5 percent Au Gres and similar soils

3 percent Halfaday and similar soils

2 percent Kalkaska and similar soils

# Description of Major Components

# **Tawas**

# **Typical Profile**

Oa—0 to 26 inches; muck 2C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Woody organic material over sandy outwash

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate

Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 13.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

## **Deford**

# **Typical Profile**

Oa—0 to 4 inches; muck C—4 to 80 inches; fine sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 5.5 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

## Land Use

Dominant land use: Forestland

# 95B—Liminga fine sand, 0 to 6 percent slopes

# Setting

Landform: Dunes; ground moraines; outwash plains

## Average Map Unit Composition

90 percent Liminga and similar soils 5 percent Alcona and similar soils 5 percent Wainola and similar soils

# Description of Major Components

# Liminga

# **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 7 inches; fine sand Bhs—7 to 9 inches; fine sand Bs—9 to 22 inches; fine sand BC—22 to 31 inches; fine sand C—31 to 80 inches; fine sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 3.9 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

# 104C—Fence very fine sandy loam, 1 to 12 percent slopes, dissected

#### Setting

Landform: Lake plains

# Average Map Unit Composition

90 percent Fence and similar soils 4 percent Shag and similar soils

4 percent Sporley and similar soils

2 percent Spear and similar soils

# Description of Major Components

# **Fence**

# **Typical Profile**

A—0 to 3 inches; very fine sandy loam E—3 to 7 inches; very fine sandy loam Bhs—7 to 11 inches; very fine sandy loam Bs,Bw—11 to 19 inches; very fine sandy loam

B/E-19 to 42 inches; silt loam

2C1,2C2—42 to 80 inches; stratified very fine sand to loamy very fine sand to very fine sandy loam to silty clay loam to silt loam

# **Soil Properties and Qualities**

Parent material: Stratified coarse-silty glaciolacustrine deposits

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 11.3 inches to a depth of 60 inches

Shrink-swell potential: High Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: 1.5 to 6.7 feet (April)

Ponding: None

# Land Use

Dominant land use: Forestland

# 109D—Rousseau-Dawson complex, 0 to 15 percent slopes

# Setting

Landform: Beach ridges and dunes

# Average Map Unit Composition

50 percent Rousseau and similar soils 45 percent Dawson and similar soils 5 percent Au Gres and similar soils

## Description of Major Components

#### Rousseau

#### **Typical Profile**

Oi-0 to 1 inch; slightly decomposed plant material

E—1 to 4 inches; fine sand Bs—4 to 20 inches; fine sand BC—20 to 33 inches; fine sand C1—33 to 66 inches; fine sand C2—66 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Eolian deposits

Slope: 2 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.8 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Dawson**

# **Typical Profile**

Oi—0 to 10 inches; peat

Oe—10 to 19 inches; mucky peat Oa—19 to 38 inches; muck C—38 to 80 inches; fine sand

# Soil Properties and Qualities

Parent material: Herbaceous material over sandy glaciofluvial deposits

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 19.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, September, October, November, December)

Depth and months of deepest ponding: 0.5 foot (April, May)

Months in which ponding does not occur: July, August, September

#### Land Use

Dominant land use: Forestland

# 109F—Rousseau-Dawson complex, 0 to 60 percent slopes

# Setting

Landform: Dunes

# Average Map Unit Composition

55 percent Rousseau and similar soils 40 percent Dawson and similar soils 5 percent Au Gres and similar soils

# Description of Major Components

# Rousseau

# **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

E—1 to 4 inches; fine sand Bs—4 to 20 inches; fine sand BC—20 to 33 inches; fine sand C1—33 to 66 inches; fine sand C2—66 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Eolian deposits

Slope: 2 to 60 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Dawson

# **Typical Profile**

Oi—0 to 10 inches; peat

Oe—10 to 19 inches; mucky peat Oa—19 to 38 inches; muck C—38 to 80 inches; fine sand

## **Soil Properties and Qualities**

Parent material: Herbaceous material over sandy glaciofluvial deposits

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 19.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, September, October, November, December)

Depth and months of deepest ponding: 0.5 foot (April, May)

Months in which ponding does not occur: July, August, September

#### Land Use

Dominant land use: Forestland

# 125B—Stutts-Kalkaska complex, 0 to 6 percent slopes

# Setting

Landform: Kame terraces; disintegration moraines; outwash plains

#### Average Map Unit Composition

50 percent Stutts and similar soils 45 percent Kalkaska and similar soils 2 percent Greenwood and similar soils 2 percent Kinross and similar soils1 percent Deerton and similar soils

# Description of Major Components

#### **Stutts**

# **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

AE—1 to 2 inches; loamy fine sand E—2 to 6 inches; loamy fine sand Bhs—6 to 7 inches; loamy fine sand Bs1—7 to 11 inches; fine sand Bs2—11 to 25 inches; fine sand C—25 to 80 inches; fine sand

## **Soil Properties and Qualities**

Parent material: Loamy eolian deposits over sandy glaciofluvial deposits

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 125D—Stutts-Kalkaska complex, 6 to 15 percent slopes

# Setting

Landform: Kame terraces; disintegration moraines; outwash plains

# Average Map Unit Composition

50 percent Stutts and similar soils 45 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Greenwood and similar soils

# Description of Major Components

#### **Stutts**

# **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

AE—1 to 2 inches; loamy fine sand E—2 to 6 inches; loamy fine sand Bhs—6 to 7 inches; loamy fine sand Bs1—7 to 11 inches; fine sand Bs2—11 to 25 inches; fine sand C—25 to 80 inches; fine sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

# Kalkaska

### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 125E—Stutts-Kalkaska complex, 15 to 35 percent slopes

# Setting

Landform: Kame terraces; disintegration moraines; outwash plains

# Average Map Unit Composition

50 percent Stutts and similar soils 45 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Greenwood and similar soils

# Description of Major Components

## **Stutts**

# **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

AE—1 to 2 inches; loamy fine sand E—2 to 6 inches; loamy fine sand Bhs—6 to 7 inches; loamy fine sand Bs1—7 to 11 inches; fine sand Bs2—11 to 25 inches; fine sand C—25 to 80 inches; fine sand

### **Soil Properties and Qualities**

Parent material: Loamy eolian deposits over sandy glaciofluvial deposits

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Kalkaska

# **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 15 to 35 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 135B—Munising, calcareous substratum-Ensley complex, 0 to 6 percent slopes

#### Setting

Landform: Ground moraines

# Average Map Unit Composition

65 percent Munising and similar soils

25 percent Ensley and similar soils

4 percent Frohling and similar soils

2 percent Charlevoix and similar soils

2 percent Escanaba and similar soils

2 percent Steuben and similar soils

# **Description of Major Components**

# Munising

# **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 3 inches; fine sandy loam Bhs—3 to 6 inches; fine sandy loam Bs—6 to 23 inches; fine sandy loam

2E/Bx—23 to 38 inches; loamy sand, fine sandy loam 2B/Ex—38 to 50 inches; fine sandy loam, loamy sand

2BC—50 to 63 inches; gravelly fine sandy loam 2C—63 to 80 inches; gravelly fine sandy loam

# **Soil Properties and Qualities**

Parent material: Eolian deposits over lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

# **Ensley**

# **Typical Profile**

Oa—0 to 5 inches; muck
A—5 to 7 inches; mucky loam
Bw—7 to 19 inches; fine sandy loam

2C—19 to 80 inches; gravelly fine sandy loam

# **Soil Properties and Qualities**

Parent material: Lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 8.3 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

# Land Use

Dominant land use: Forestland

# 145C—Munising-Yalmer complex, 1 to 12 percent slopes, dissected, very stony

# Setting

Landform: End moraines

# Average Map Unit Composition

50 percent Munising and similar soils

35 percent Yalmer and similar soils

6 percent Frohling and similar soils

3 percent Gay and similar soils

2 percent Abbaye and similar soils

2 percent Paavola and similar soils

2 percent Skanee and similar soils

# Description of Major Components

# Munising

# **Typical Profile**

Oe—0 to 1 inch; highly decomposed plant material

A—1 to 2 inches; fine sandy loam E—2 to 10 inches; loamy sand Bhs—10 to 14 inches; sandy loam Bs—14 to 22 inches; sandy loam B/Ex—22 to 49 inches; sandy loam Bt—49 to 63 inches; sandy loam C—63 to 80 inches; sandy loam

# Soil Properties and Qualities

Parent material: Loamy lodgment till

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

#### **Yalmer**

### **Typical Profile**

Oe—0 to 1 inch; highly decomposed plant material

A—1 to 3 inches; loamy sand E—3 to 8 inches; loamy sand Bhs—8 to 11 inches; sand

Bs1,Bs2—11 to 24 inches; fine sand

2E/Bx,2B/Ex—24 to 40 inches; fine sandy loam, loamy fine sand

2Bt—40 to 66 inches; fine sandy loam 2C—66 to 80 inches; fine sandy loam

#### **Soil Properties and Qualities**

Parent material: Sandy outwash over loamy till

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

Land Use

Dominant land use: Forestland

# 146B—Munising-Skanee complex, 0 to 6 percent slopes, stony

# Setting

Landform: Ground moraines; end moraines

# Average Map Unit Composition

60 percent Munising and similar soils

30 percent Skanee and similar soils

5 percent Frohling and similar soils

3 percent Gay and similar soils

2 percent Abbaye and similar soils

# Description of Major Components

# Munising

# **Typical Profile**

Oe—0 to 1 inch; highly decomposed plant material

A—1 to 2 inches; sandy loam
E—2 to 10 inches; loamy sand
Bhs—10 to 14 inches; sandy loam
Bs—14 to 22 inches; sandy loam
B/Ex—22 to 49 inches; sandy loam
Bt—49 to 63 inches; sandy loam
C—63 to 80 inches; sandy loam

# **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 15 to 26 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

#### Skanee

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 8 inches; fine sandy loam
Bhs—8 to 14 inches; fine sandy loam
E/Bx—14 to 31 inches; fine sandy loam
Bt—31 to 42 inches; sandy clay loam
C—42 to 80 inches; sandy loam

# **Soil Properties and Qualities**

Parent material: Loamy till Slope: 0 to 3 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 12 to 20 inches to a fragipan

Drainage class: Somewhat poorly drained

Available water capacity: About 3.5 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 0.5 foot to 1.2 feet (April, May)

Ponding: None

## Land Use

Dominant land use: Forestland

# 147A—Skanee-Gay complex, 0 to 3 percent slopes, very stony

#### Setting

Landform: Moraines

# Average Map Unit Composition

55 percent Skanee and similar soils

35 percent Gay and similar soils

4 percent Munising and similar soils

2 percent Assinins and similar soils

2 percent Cathro and similar soils

2 percent Yalmer and similar soils

# Description of Major Components

# Skanee

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 8 inches; fine sandy loam
Bhs—8 to 14 inches; fine sandy loam
E/Bx—14 to 31 inches; fine sandy loam
Bt—31 to 42 inches; sandy clay loam
C—42 to 80 inches; sandy loam

# **Soil Properties and Qualities**

Parent material: Loamy till Slope: 0 to 3 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 12 to 20 inches to a fragipan

Drainage class: Somewhat poorly drained

Available water capacity: About 3.5 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 0.5 foot to 1.2 feet (April, May)

Ponding: None

Gay

# **Typical Profile**

Oa—0 to 4 inches; muck

A—4 to 7 inches; fine sandy loam Eg—7 to 11 inches; sandy loam Bw—11 to 16 inches; sandy loam BC,C—16 to 80 inches; sandy loam

# **Soil Properties and Qualities**

Parent material: Loamy till Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 8.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

# Land Use

Dominant land use: Forestland

# 148B—Shoepac-Ensley complex, 0 to 6 percent slopes Setting

Landform: Ground moraines

# Average Map Unit Composition

70 percent Shoepac and similar soils 20 percent Ensley and similar soils

- 3 percent Trenary and similar soils
- 2 percent Cathro and similar soils
- 2 percent Charlevoix and similar soils
- 2 percent Traunik and similar soils
- 1 percent Escanaba and similar soils

# Description of Major Components

# Shoepac

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 6 inches; silt loam

Bs1—6 to 12 inches; fine sandy loam Bs2—12 to 23 inches; loamy sand

E/B—23 to 33 inches; loamy sand, fine sandy loam

Bt—33 to 53 inches; fine sandy loam

C—53 to 80 inches; gravelly fine sandy loam

# **Soil Properties and Qualities**

Parent material: Eolian deposits over lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 7.7 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: 1.5 to 6.7 feet (April)

Ponding: None

## **Ensley**

# **Typical Profile**

Oa—0 to 5 inches; muck A—5 to 7 inches; mucky loam

Bw—7 to 19 inches; fine sandy loam

2C—19 to 80 inches; gravelly fine sandy loam

# **Soil Properties and Qualities**

Parent material: Lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 8.3 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October, November)

Months in which ponding does not occur: January, February, July, August, September, December

## Land Use

Dominant land use: Forestland

# 155A—Zeba-Jacobsville complex, 0 to 3 percent slopes, very stony

# Setting

Landform: Benches and flats on moraines

# Average Map Unit Composition

55 percent Zeba and similar soils

30 percent Jacobsville and similar soils

4 percent Gay and similar soils

3 percent Chocolay and similar soils

3 percent Skandia and similar soils

3 percent Skanee and similar soils

2 percent Paavola and similar soils

# **Description of Major Components**

#### Zeba

# **Typical Profile**

A—0 to 2 inches; cobbly fine sandy loam E—2 to 5 inches; cobbly fine sandy loam Bs—5 to 13 inches; cobbly fine sandy loam E',B/E—13 to 33 inches; sandy loam 2R—33 inches; unweathered bedrock

# **Soil Properties and Qualities**

Parent material: Loamy drift

Slope: 0 to 3 percent

Hazard of soil blowing: Slight Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 4.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 0.5 to 2.8 feet (May)

Ponding: None

## **Jacobsville**

# **Typical Profile**

Oa—0 to 5 inches; muck E—5 to 9 inches; sandy loam

Bw—9 to 23 inches; sandy loam C—23 to 36 inches; sandy loam 2R—36 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 6.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

### Land Use

Dominant land use: Forestland

# 157B—Reade-Nahma complex, 0 to 6 percent slopes, stony

# Setting

Landform: Ground moraines

# Average Map Unit Composition

45 percent Reade and similar soils

40 percent Nahma and similar soils

5 percent Ensign and similar soils

3 percent Cookson and similar soils

3 percent Shoepac and similar soils

2 percent Nykanen and similar soils

2 percent Summerville and similar soils

# Description of Major Components

# Reade

# **Typical Profile**

Oa—0 to 4 inches; highly decomposed plant material

E—4 to 7 inches; silt loam Bhs—7 to 9 inches; loam

Bs1,Bs2—9 to 15 inches; fine sandy loam 2B/E—15 to 20 inches; fine sandy loam

2BC—20 to 28 inches; gravelly fine sandy loam

3R—28 inches; unweathered bedrock

# **Soil Properties and Qualities**

Parent material: Loamy till Slope: 1 to 6 percent

Hazard of soil blowing: Slight Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.3 feet (April, July, October)

Ponding: None

#### Nahma

# **Typical Profile**

Oa—0 to 9 inches; muck

Bg—9 to 14 inches; fine sandy loam Bw1—14 to 19 inches; fine sandy loam Bw2—19 to 22 inches; fine sandy loam 2BC—22 to 25 inches; fine sandy loam 2C—25 to 30 inches; sandy loam

3R-30 inches; bedrock

# **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 7.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

## Land Use

Dominant land use: Forestland

# 158C—Munising-Abbaye fine sandy loams, 1 to 12 percent slopes, dissected, stony

# Setting

Landform: Ground moraines; end moraines

# Average Map Unit Composition

50 percent Munising and similar soils

35 percent Abbaye and similar soils

5 percent Frohling and similar soils

3 percent Jacobsville and similar soils

3 percent Zeba and similar soils

2 percent Skanee and similar soils

2 percent Yalmer and similar soils

# Description of Major Components

# Munising

# **Typical Profile**

Oe—0 to 1 inch; highly decomposed plant material

A—1 to 2 inches; fine sandy loam E—2 to 10 inches; loamy sand

Bhs—10 to 14 inches; fine sandy loam Bs—14 to 22 inches; fine sandy loam B/Ex—22 to 49 inches; sandy loam Bt—49 to 63 inches; sandy loam C—63 to 80 inches; fine sandy loam

# **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

# **Abbaye**

### **Typical Profile**

Oi—0 to 2 inches; slightly decomposed plant material

A—2 to 4 inches; fine sandy loam E—4 to 13 inches; loamy sand

Bs1,Bs2—13 to 25 inches; sandy loam

B/E—25 to 32 inches; loamy sand, sandy loam

2R—32 inches; unweathered bedrock

# Soil Properties and Qualities

Parent material: Lodgment till

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 4.3 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.7 feet (April, October)

Ponding: None

## Land Use

Dominant land use: Forestland

# 160B—Paquin-Finch sands, 0 to 6 percent slopes

Setting

Landform: Outwash plains

# Average Map Unit Composition

50 percent Paquin and similar soils 40 percent Finch and similar soils 5 percent Spot and similar soils 5 percent Wallace and similar soils

# **Description of Major Components**

# **Paquin**

# **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 12 inches; sand Bhs—12 to 14 inches; sand Bhsm—14 to 17 inches; sand Bsm—17 to 27 inches; sand BC—27 to 34 inches; sand C—34 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 10 to 16 inches to ortstein

Drainage class: Moderately well drained

Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)

Ponding: None

## **Finch**

# **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 11 inches; sand

Bsm—11 to 42 inches; sand C—42 to 80 inches: fine sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 3 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 7 to 13 inches to ortstein

Drainage class: Somewhat poorly drained

Available water capacity: About 2.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 161B—Yellowdog-Buckroe complex, 0 to 6 percent slopes, stony

# Setting

Landform: Beaches on benches

# Average Map Unit Composition

50 percent Yellowdog and similar soils

40 percent Buckroe and similar soils

3 percent Sauxhead and similar soils

3 percent Waiska and similar soils

2 percent Burt and similar soils

2 percent Levasseur and similar soils

# Description of Major Components

# Yellowdog

#### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material Bw1,Bw2—2 to 32 inches; very channery sand

2R—32 inches; unweathered bedrock

# **Soil Properties and Qualities**

Parent material: Channery beach sand

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 0.3 inch to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Buckroe**

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material Bw1—2 to 4 inches; very channery loamy sand Bw2—4 to 15 inches; very channery sand 2R—15 inches; unweathered bedrock

# **Soil Properties and Qualities**

Parent material: Channery beach sand

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 0.4 inch to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 165B—Chocolay-Waiska complex, 1 to 6 percent slopes, very stony

# Setting

Landform: Benches

# Average Map Unit Composition

55 percent Chocolay and similar soils

30 percent Waiska and similar soils

4 percent Paavola and similar soils

4 percent Sauxhead and similar soils

3 percent Shelterbay and similar soils

2 percent Chabeneau and similar soils

2 percent Jacobsville and similar soils

# Description of Major Components

#### Chocolay

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

A—2 to 3 inches; very stony fine sandy loam E—3 to 8 inches; very stony fine sandy loam

Bhs—8 to 14 inches; very stony fine sandy loam Bs—14 to 27 inches; very gravelly sandy loam

2R—27 inches; bedrock

# **Soil Properties and Qualities**

Parent material: Loamy till Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.3 feet (April, October)

Ponding: None

#### Waiska

# **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 4 inches; cobbly loamy sand Bhs—4 to 8 inches; gravelly sand Bs—8 to 18 inches; very gravelly sand BC,C—18 to 80 inches; gravelly sand

## **Soil Properties and Qualities**

Parent material: Sandy and gravelly outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 1.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

# Land Use

Dominant land use: Forestland

# 166—Skandia mucky peat

#### Setting

Landform: Depressions and drainageways on moraines

# Average Map Unit Composition

95 percent Skandia and similar soils 2 percent Jacobsville and similar soils

2 percent Sauxhead and similar soils1 percent Burt and similar soils

# Description of Major Components

#### Skandia

# **Typical Profile**

Oe—0 to 4 inches; mucky peat Oa—4 to 26 inches; muck

2Cr—26 to 31 inches; weathered bedrock 2R—31 inches; unweathered bedrock

# Soil Properties and Qualities

Parent material: Woody material; herbaceous material

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 16 to 50 inches to paralithic bedrock; 16 to 51 inches to

lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 10.8 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

## Land Use

Dominant land use: Forestland

# 167—Skandia-Jacobsville complex, stony

# Setting

Landform: Depressions and drainageways on moraines

# Average Map Unit Composition

55 percent Skandia and similar soils

35 percent Jacobsville and similar soils

3 percent Chocolay and similar soils

3 percent Sauxhead and similar soils

2 percent Levasseur and similar soils

2 percent Zeba and similar soils

## **Description of Major Components**

## Skandia

# **Typical Profile**

Oe—0 to 4 inches; mucky peat Oa—4 to 26 inches; muck

2Cr—26 to 31 inches; weathered bedrock 2R—31 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Woody material; herbaceous material

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 16 to 50 inches to paralithic bedrock; 16 to 51 inches to

lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 10.8 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

#### Jacobsville

# **Typical Profile**

Oa—0 to 5 inches; muck E—5 to 9 inches; sandy loam Bw—9 to 23 inches; sandy loam C—23 to 36 inches; sandy loam 2R—36 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 6.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

# Land Use

Dominant land use: Forestland

# 170B—Chocolay very stony fine sandy loam, 1 to 6 percent slopes, very stony

# Setting

Landform: Benches

# Average Map Unit Composition

90 percent Chocolay and similar soils 3 percent Paavola and similar soils 2 percent Jacobsville and similar soils 2 percent Munising and similar soils 2 percent Zeba and similar soils 1 percent Skandia and similar soils

# **Description of Major Components**

# Chocolay

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material A—2 to 3 inches; very stony fine sandy loam E—3 to 8 inches; very stony fine sandy loam

Bhs—8 to 14 inches; very stony fine sandy loam Bs—14 to 27 inches; very gravelly sandy loam

2R-27 inches; bedrock

# **Soil Properties and Qualities**

Parent material: Loamy till Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.3 feet (April, October)

Ponding: None

# Land Use

Dominant land use: Forestland

# 171B—Paavola very gravelly loamy sand, 0 to 6 percent slopes, very stony

#### Setting

Landform: Moraines

# Average Map Unit Composition

90 percent Paavola and similar soils 3 percent Chabeneau and similar soils

- 3 percent Gay and similar soils
- 2 percent Chocolay and similar soils
- 2 percent Skanee and similar soils

# **Description of Major Components**

#### **Paavola**

# **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

A-2 to 6 inches; very gravelly loamy sand

Bhs—6 to 15 inches; extremely gravelly loamy coarse sand

Bs—15 to 31 inches; extremely gravelly coarse sand 2(E/B)x,2Btx—31 to 59 inches; gravelly sandy loam

2Cd—59 to 80 inches; gravelly sandy loam

# **Soil Properties and Qualities**

Parent material: Sandy and gravelly outwash over loamy lodgment till

Slope: 0 to 6 percent

Hazard of soil blowing: Slight Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 19 to 38 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 1.8 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1.0 to 2.6 feet (April)

Ponding: None

## Land Use

Dominant land use: Forestland

# 172D—Buckroe-Rock outcrop complex, 6 to 25 percent slopes, very bouldery

# Setting

Landform: Benches

# Average Map Unit Composition

70 percent Buckroe and similar soils

15 percent Rock outcrop

8 percent Jacobsville and similar soils

3 percent Sauxhead and similar soils

2 percent Chocolay and similar soils

2 percent Levasseur and similar soils

## **Description of Major Components**

## **Buckroe**

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material Bw1—2 to 4 inches; very channery loamy sand

Bw2—4 to 15 inches; very channery sand 2R—15 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Channery sandy glaciofluvial deposits

Slope: 6 to 25 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 0.4 inch to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 172F—Buckroe-Rock outcrop complex, 25 to 70 percent slopes, very bouldery

# Setting

Landform: Benches

# Average Map Unit Composition

70 percent Buckroe and similar soils

15 percent Rock outcrop

8 percent Jacobsville and similar soils

3 percent Sauxhead and similar soils

2 percent Chocolay and similar soils

2 percent Levasseur and similar soils

# Description of Major Components

#### **Buckroe**

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material Bw1—2 to 4 inches; very channery loamy sand Bw2—4 to 15 inches; very channery sand 2R—15 inches; unweathered bedrock

# **Soil Properties and Qualities**

Parent material: Channery sandy glaciofluvial deposits

Slope: 25 to 70 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 0.4 inch to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

# 176B—Croswell-Kinross complex, 0 to 6 percent slopes

# Setting

Landform: Lake plains; outwash plains; dunes; stream terraces; beach ridges

# Average Map Unit Composition

50 percent Croswell and similar soils 40 percent Kinross and similar soils

5 percent Greenwood and similar soils

4 percent Deer Park and similar soils

1 percent Au Gres and similar soils

# Description of Major Components

#### Croswell

# **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 6 inches; sand

Bs1,Bs2—6 to 15 inches; sand BC—15 to 22 inches; sand C—22 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; beach sand

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)

Ponding: None

#### **Kinross**

#### **Typical Profile**

Oa—0 to 3 inches; muck Eg—3 to 14 inches; sand Bhs—14 to 22 inches; sand Bs—22 to 35 inches; sand C—35 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Sandy outwash; beach sand

Slope: 0 to 2 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

# 181E—Frohling-Tokiahok complex, 8 to 35 percent slopes, dissected, stony

# Setting

Landform: Moraines

# **Average Map Unit Composition**

60 percent Frohling and similar soils

30 percent Tokiahok and similar soils

3 percent Munising and similar soils

2 percent Abbaye and similar soils

2 percent Gay and similar soils

2 percent Kalkaska and similar soils

1 percent Garlic and similar soils

#### Description of Major Components

# **Frohling**

#### **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 2 inches; fine sandy loam E—2 to 7 inches; fine sandy loam Bhs—7 to 9 inches; fine sandy loam Bs—9 to 16 inches; fine sandy loam E/Bx—16 to 34 inches; loamy fine sand B/Ex—34 to 80 inches; fine sandy loam

# **Soil Properties and Qualities**

Parent material: Loamy till Slope: 8 to 35 percent

Hazard of soil blowing: Slight
Surface runoff class: Medium
Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Tokiahok**

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 11 inches; loamy fine sand Bhs—11 to 15 inches; loamy fine sand Bs—15 to 24 inches; loamy fine sand 2E/Bx,2B/Ex—24 to 59 inches; sandy loam 2BC,2C—59 to 80 inches; sandy loam

### **Soil Properties and Qualities**

Parent material: Sandy outwash over loamy till

Slope: 8 to 35 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 185B—McMaster cobbly sandy loam, 0 to 4 percent slopes

# Setting

Landform: Recessional moraines

# Average Map Unit Composition

90 percent McMaster and similar soils 7 percent Traunik and similar soils 2 percent Davies and similar soils 1 percent Halfaday and similar soils

# **Description of Major Components**

#### **McMaster**

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

A—2 to 4 inches; cobbly sandy loam
E—4 to 8 inches; cobbly loamy sand
Bhs—8 to 11 inches; cobbly sandy loam

2Bs—11 to 24 inches; very gravelly loamy sand 2BC—24 to 39 inches; very gravelly coarse sand 2C—39 to 80 inches; extremely gravelly coarse sand

# **Soil Properties and Qualities**

Parent material: Loamy drift over calcareous gravelly outwash

Slope: 0 to 4 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 2.4 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)

Ponding: None

# Land Use

Dominant land use: Forestland Other uses: Cropland, pasture

# 186B—Chatham fine sandy loam, 1 to 6 percent slopes, stony

#### Setting

Landform: Glacial drainage channels

### Average Map Unit Composition

85 percent Chatham and similar soils

5 percent Eben and similar soils

4 percent Trenary and similar soils

2 percent Ensley and similar soils

2 percent Longrie and similar soils

2 percent Congre and similar soils 2 percent Traunik and similar soils

# Description of Major Components

#### Chatham

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 6 inches; fine sandy loam

Bs1—6 to 20 inches; gravelly fine sandy loam

Bs2—20 to 39 inches; flaggy fine sandy loam

2C—39 to 80 inches; extremely flaggy fine sandy loam

### **Soil Properties and Qualities**

Parent material: Loamy glacial outburst flood deposits

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate
Surface runoff class: Negligible
Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Cropland Other uses: Forestland

# 186D—Chatham fine sandy loam, 6 to 15 percent slopes, stony

# Setting

Landform: Glacial drainage channels

# Average Map Unit Composition

85 percent Chatham and similar soils

6 percent Eben and similar soils

5 percent Traunik and similar soils

2 percent Ensley and similar soils

2 percent Trenary and similar soils

# Description of Major Components

#### Chatham

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 6 inches; fine sandy loam

Bs1—6 to 20 inches; gravelly fine sandy loam Bs2—20 to 39 inches; flaggy fine sandy loam

2C—39 to 80 inches; extremely flaggy fine sandy loam

# **Soil Properties and Qualities**

Parent material: Loamy glacial outburst flood deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Cropland Other uses: Forestland

# 187B—Reade silt loam, 0 to 4 percent slopes

# Setting

Landform: Ground moraines

# Average Map Unit Composition

85 percent Reade and similar soils

4 percent Cookson and similar soils

4 percent Shoepac and similar soils

3 percent Nahma and similar soils

2 percent Kiva and similar soils

2 percent Summerville and similar soils

# **Description of Major Components**

#### Reade

# **Typical Profile**

Oa—0 to 4 inches; highly decomposed plant material

E—4 to 7 inches; silt loam Bhs—7 to 9 inches; loam

Bs1,Bs2—9 to 15 inches; fine sandy loam 2B/E—15 to 20 inches; fine sandy loam

2BC—20 to 28 inches; gravelly fine sandy loam

3R—28 inches; unweathered bedrock

# **Soil Properties and Qualities**

Parent material: Loamy till Slope: 0 to 4 percent

Hazard of soil blowing: Slight Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.3 feet (April, July, October)

Ponding: None

# Land Use

Dominant land use: Forestland

# 188B—Eben very cobbly sandy loam, 1 to 6 percent slopes, stony

# Setting

Landform: Glacial drainage channels

# Average Map Unit Composition

85 percent Eben and similar soils

5 percent Chatham and similar soils

4 percent Summerville and similar soils

2 percent Cusino and similar soils

2 percent Nahma and similar soils

2 percent Trenary and similar soils

# **Description of Major Components**

#### Eben

# **Typical Profile**

A-0 to 6 inches; very cobbly sandy loam

Bw1—6 to 22 inches; very cobbly sandy loam

Bw2—22 to 25 inches; very cobbly loamy sand 2BC—25 to 35 inches; extremely gravelly loamy coarse sand

2C-35 to 80 inches; extremely gravelly coarse sand

## **Soil Properties and Qualities**

Parent material: Sandy over loamy outburst flood deposits

Slope: 1 to 6 percent

Hazard of soil blowing: Slight Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland Other uses: Cropland, pasture

# 188D—Eben very cobbly sandy loam, 6 to 15 percent slopes, stony

#### Setting

Landform: Glacial drainage channels

# Average Map Unit Composition

90 percent Eben and similar soils 3 percent Chatham and similar soils

- 3 percent Kalkaska and similar soils
- 2 percent Nahma and similar soils
- 2 percent Trenary and similar soils

# **Description of Major Components**

#### Eben

### **Typical Profile**

A—0 to 6 inches; very cobbly sandy loam Bw1—6 to 22 inches; very cobbly sandy loam Bw2—22 to 25 inches; very cobbly loamy sand

2BC—25 to 35 inches; extremely gravelly loamy coarse sand

2C-35 to 80 inches; extremely gravelly coarse sand

### **Soil Properties and Qualities**

Parent material: Loamy over sandy glacial outburst flood deposits

Slope: 6 to 15 percent
Hazard of soil blowing: Slight
Surface runoff class: Medium
Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Pasture

# 188E—Eben very cobbly sandy loam, 15 to 35 percent slopes, stony

### Setting

Landform: Glacial drainage channels

# Average Map Unit Composition

90 percent Eben and similar soils 5 percent Chatham and similar soils

2 percent Nahma and similar soils

2 percent Trenary and similar soils

1 percent Kalkaska and similar soils

#### **Description of Major Components**

#### Eben

#### **Typical Profile**

A—0 to 6 inches; very cobbly sandy loam Bw1—6 to 22 inches; very cobbly sandy loam Bw2—22 to 25 inches; very cobbly loamy sand

2BC—25 to 35 inches; extremely gravelly loamy coarse sand 2C—35 to 80 inches; extremely gravelly coarse sand

#### **Soil Properties and Qualities**

Parent material: Loamy over sandy glacial outburst flood deposits

Slope: 15 to 35 percent Hazard of soil blowing: Slight Surface runoff class: High

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

Other uses: Pasture

# 191B—Ruse-Ensign complex, 0 to 3 percent slopes

# Setting

Landform: Depressions on ground moraines

# Average Map Unit Composition

60 percent Ruse and similar soils

25 percent Ensign and similar soils

5 percent Nahma and similar soils

4 percent Nykanen and similar soils

3 percent Namur and similar soils

3 percent Summerville and similar soils

# Description of Major Components

#### Ruse

#### **Typical Profile**

A—0 to 7 inches; mucky silt loam Bg—7 to 11 inches; fine sandy loam Bw—11 to 15 inches; fine sandy loam

R—15 inches; bedrock

### **Soil Properties and Qualities**

Parent material: Loamy till Slope: 0 to 2 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: 4 to 20 inches to lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 2.3 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

# Ensign

# **Typical Profile**

Oe—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; fine sandy loam B/A—5 to 8 inches; fine sandy loam Bw—8 to 15 inches; fine sandy loam 2R—15 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Loamy till Slope: 0 to 3 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 2.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: 0.5 foot to 1.2 feet (May)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 197B—Shoepac-Trenary silt loams, 1 to 6 percent slopes

# Setting

Landform: Ground moraines; recessional moraines

# Average Map Unit Composition

50 percent Shoepac and similar soils

40 percent Trenary and similar soils

3 percent Charlevoix and similar soils

2 percent Ensley and similar soils

2 percent Escanaba and similar soils

2 percent Traunik and similar soils

1 percent Cathro and similar soils

# **Description of Major Components**

# **Shoepac**

### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 6 inches; silt loam

Bs1—6 to 12 inches; fine sandy loam Bs2—12 to 23 inches; loamy sand

E/B—23 to 33 inches; loamy sand, fine sandy loam

Bt—33 to 53 inches; fine sandy loam

C—53 to 80 inches; gravelly fine sandy loam

# **Soil Properties and Qualities**

Parent material: Eolian deposits over lodgment till

Slope: 1 to 4 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 7.7 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: 1.5 to 6.7 feet (April)

Ponding: None

### **Trenary**

# **Typical Profile**

A—0 to 2 inches; silt loam
E—2 to 6 inches; fine sandy loam
Bhs—6 to 12 inches; fine sandy loam
Bs—12 to 17 inches; fine sandy loam
E′—17 to 26 inches; sandy loam
Bt—26 to 37 inches; sandy clay loam
C—37 to 80 inches; sandy loam

### **Soil Properties and Qualities**

Parent material: Eolian deposits over loamy till

Slope: 2 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 8.5 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 198B—Shoepac-Reade silt loams, 1 to 4 percent slopes

# Setting

Landform: Ground moraines

# Average Map Unit Composition

60 percent Shoepac and similar soils 30 percent Reade and similar soils 6 percent Trenary and similar soils 2 percent Cookson and similar soils 2 percent Ensley and similar soils

# **Description of Major Components**

# Shoepac

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 6 inches; silt loam

Bs1—6 to 12 inches; fine sandy loam Bs2—12 to 23 inches; loamy sand

E/B—23 to 33 inches; loamy sand, fine sandy loam

Bt—33 to 53 inches; fine sandy loam

C—53 to 80 inches; gravelly fine sandy loam

# **Soil Properties and Qualities**

Parent material: Eolian deposits over lodgment till

Slope: 1 to 4 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 7.7 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: 1.5 to 6.7 feet (April)

Ponding: None

#### Reade

### **Typical Profile**

Oa—0 to 4 inches; highly decomposed plant material

E—4 to 7 inches; silt loam Bhs—7 to 9 inches; loam

Bs1,Bs2—9 to 15 inches; fine sandy loam 2B/E—15 to 20 inches; fine sandy loam

2BC—20 to 28 inches; gravelly fine sandy loam

3R—28 inches; unweathered bedrock

### **Soil Properties and Qualities**

Parent material: Eolian deposits over loamy till

Slope: 1 to 4 percent

Hazard of soil blowing: Slight Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.3 feet (April, July, October)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 200A—Charlevoix-Ensley complex, 0 to 3 percent slopes Setting

Landform: Ground moraines

# Average Map Unit Composition

55 percent Charlevoix and similar soils

30 percent Ensley and similar soils

5 percent Cathro and similar soils

5 percent Shoepac and similar soils

3 percent Trenary and similar soils

2 percent Traunik and similar soils

#### **Description of Major Components**

# Charlevoix

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 5 inches; silt loam Bhs—5 to 7 inches; silt loam Bs—7 to 12 inches; silt loam

2E/B—12 to 16 inches; fine sandy loam, loamy fine sand

2B/E—16 to 27 inches; cobbly fine sandy loam, cobbly loamy fine sand

2C-27 to 80 inches; cobbly fine sandy loam

### **Soil Properties and Qualities**

Parent material: Eolian deposits over lodgment till

Slope: 0 to 3 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat poorly drained

Available water capacity: About 9.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: 0.5 foot to 7.0 feet (May)

Ponding: None

#### **Ensley**

### **Typical Profile**

Oa—0 to 5 inches; muck
A—5 to 7 inches; mucky loam
Bw—7 to 19 inches; fine sandy loam

2C—19 to 80 inches; gravelly fine sandy loam

# **Soil Properties and Qualities**

Parent material: Lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 8.3 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

#### Land Use

Dominant land use: Forestland

# 202B—Sauxhead sandy loam, 1 to 6 percent slopes, rocky, very stony

#### Setting

Landform: Benches; moraines

#### Average Map Unit Composition

85 percent Sauxhead and similar soils

5 percent rock outcrop

5 percent Chocolay and similar soils

3 percent Burt and similar soils

2 percent Levasseur and similar soils

#### **Description of Major Components**

#### Sauxhead

# **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 4 inches; sandy loam

2Bw—4 to 14 inches; very channery loamy sand 3Cr—14 to 17 inches; weathered bedrock 3R—17 inches; unweathered bedrock

### **Soil Properties and Qualities**

Parent material: Sandy and channery sandstone; glaciofluvial deposits

Slope: 1 to 6 percent

Hazard of soil blowing: Slight Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to

lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 0.8 inch to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 1.4 feet (April, May, October, November)

Ponding: None

# Land Use

Dominant land use: Forestland

# 206B—Traunik cobbly fine sandy loam, 1 to 6 percent slopes

# Setting

Landform: Recessional moraines; outwash plains

#### Average Map Unit Composition

90 percent Traunik and similar soils

5 percent Kiva and similar soils

2 percent McMaster and similar soils

2 percent Trenary and similar soils

1 percent Davies and similar soils

# **Description of Major Components**

#### **Traunik**

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 4 inches; cobbly fine sandy loam Bs1—4 to 11 inches; cobbly fine sandy loam 2Bs2—11 to 24 inches; very gravelly sand 2BC—24 to 31 inches; very gravelly sand 2C—31 to 80 inches; very gravelly sand

#### **Soil Properties and Qualities**

Parent material: Loamy eolian deposits over sandy and gravelly outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 2.7 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland Other uses: Cropland, pasture

# 206D—Traunik cobbly fine sandy loam, 6 to 15 percent slopes

# Setting

Landform: Recessional moraines; outwash plains

# Average Map Unit Composition

90 percent Traunik and similar soils

6 percent Kiva and similar soils

2 percent Trenary and similar soils

1 percent Davies and similar soils

1 percent McMaster and similar soils

# Description of Major Components

#### **Traunik**

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 4 inches; cobbly fine sandy loam Bs1—4 to 11 inches; cobbly fine sandy loam 2Bs2—11 to 24 inches; very gravelly sand 2BC—24 to 31 inches; very gravelly sand 2C—31 to 80 inches; very gravelly sand

#### **Soil Properties and Qualities**

Parent material: Loamy eolian deposits over sandy and gravelly outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 2.7 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Pasture

# 211B—Munising-Abbaye fine sandy loams, 1 to 6 percent slopes

### Setting

Landform: Ground moraines: end moraines

# Average Map Unit Composition

55 percent Munising and similar soils

35 percent Abbaye and similar soils

3 percent Jacobsville and similar soils

3 percent Skanee and similar soils

2 percent Frohling and similar soils

2 percent Zeba and similar soils

# **Description of Major Components**

### Munising

# **Typical Profile**

Oe—0 to 1 inch; highly decomposed plant material

A—1 to 2 inches; fine sandy loam E—2 to 10 inches; loamy sand Bhs—10 to 14 inches; sandy loam Bs—14 to 22 inches; sandy loam B/Ex—22 to 49 inches; sandy loam Bt—49 to 63 inches; sandy loam C—63 to 80 inches; sandy loam

#### **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

#### **Abbaye**

# Typical Profile

Oi—0 to 2 inches; slightly decomposed plant material

A—2 to 4 inches; fine sandy loam E—4 to 13 inches; loamy sand

Bs1,Bs2—13 to 25 inches; sandy loam

B/E—25 to 32 inches; sandy loam, loamy sand

2R—32 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 4.3 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.7 feet (April, October)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 214B—Kalkaska-Blue Lake complex, 1 to 6 percent slopes

# Setting

Landform: Disintegration moraines; outwash plains

# Average Map Unit Composition

60 percent Kalkaska and similar soils

30 percent Blue Lake and similar soils

6 percent Dillingham and similar soils

2 percent Halfaday and similar soils

2 percent Steuben and similar soils

# Description of Major Components

#### Kalkaska

### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Blue Lake

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

# Land Use

Dominant land use: Forestland

# 214D—Kalkaska-Blue Lake complex, 6 to 15 percent slopes

### Setting

Landform: Disintegration moraines; outwash plains

# Average Map Unit Composition

55 percent Kalkaska and similar soils

35 percent Blue Lake and similar soils

6 percent Dillingham and similar soils

2 percent Halfaday and similar soils

2 percent Steuben and similar soils

#### **Description of Major Components**

#### Kalkaska

# **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand

Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Blue Lake**

### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand

E/B,E and B—27 to 80 inches; loamy sand, sand

### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

# Land Use

Dominant land use: Forestland

# 214E—Kalkaska-Blue Lake complex, 15 to 35 percent slopes

### Setting

Landform: Disintegration moraines; outwash plains

# Average Map Unit Composition

55 percent Kalkaska and similar soils

35 percent Blue Lake and similar soils

5 percent Dillingham and similar soils

2 percent Deford and similar soils

2 percent Steuben and similar soils

1 percent Tawas and similar soils

# Description of Major Components

#### Kalkaska

# **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 15 to 35 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

# Blue Lake

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand

E/B,E and B—27 to 80 inches; sand, loamy sand

#### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 221B—Jeske-Au Train-Gongeau complex, 0 to 8 percent slopes

# Setting

Landform: Moraines

# **Average Map Unit Composition**

40 percent Jeske and similar soils

30 percent Au Train and similar soils

20 percent Gongeau and similar soils

8 percent Deerton and similar soils

2 percent Trout Bay and similar soils

# Description of Major Components

#### **Jeske**

## **Typical Profile**

Oe,Oa—0 to 3 inches; highly decomposed plant material

C1,C2—3 to 21 inches; sand

2Cr—21 to 31 inches; weathered bedrock 2R—31 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits and sandy residuum

Slope: 0 to 2 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: 10 to 23 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 2.5 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (April)

Ponding: None

#### Au Train

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 9 inches; coarse sand
Bhs—9 to 14 inches; coarse sand
Cr—14 to 32 inches; weathered bedrock
R—32 inches; unweathered bedrock

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits and sandy residuum

Slope: 1 to 8 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 1.4 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.7 feet (April, November)

Ponding: None

#### Gongeau

# **Typical Profile**

Oa—0 to 5 inches; muck

A-5 to 7 inches; mucky loamy sand

2C—7 to 18 inches; sand

2Cr—18 to 29 inches; weathered bedrock 2R—29 inches; unweathered bedrock

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 30 inches to

lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

# 225B—Cusino loamy sand, 1 to 6 percent slopes

#### Setting

Landform: Moraines; outwash plains; kame terraces

# Average Map Unit Composition

95 percent Cusino and similar soils 5 percent Waiska and similar soils

# **Description of Major Components**

#### Cusino

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 8 inches; loamy sand Bhs—8 to 10 inches; loamy sand Bs1,Bs2—10 to 17 inches; sand BC,C—17 to 63 inches; gravelly sand

## Soil Properties and Qualities

Parent material: Sandy and gravelly glaciofluvial deposits

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 225D—Cusino loamy sand, 6 to 15 percent slopes

# Setting

Landform: Moraines; outwash plains; kame terraces

# Average Map Unit Composition

95 percent Cusino and similar soils 5 percent Waiska and similar soils

### Description of Major Components

#### Cusino

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 8 inches; loamy sand Bhs—8 to 10 inches; loamy sand Bs1,Bs2—10 to 17 inches; sand BC,C—17 to 63 inches; gravelly sand

#### **Soil Properties and Qualities**

Parent material: Sandy and gravelly outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

# 226B—Kalkaska-Cusino complex, 1 to 6 percent slopes

# Setting

Landform: Disintegration moraines; outwash plains; kame terraces

# Average Map Unit Composition

60 percent Kalkaska and similar soils 35 percent Cusino and similar soils 5 percent Waiska and similar soils

# Description of Major Components

#### Kalkaska

# **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

# Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Cusino

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 8 inches; loamy sand Bhs—8 to 10 inches; loamy sand Bs—10 to 17 inches; sand

C—17 to 63 inches; gravelly sand

### **Soil Properties and Qualities**

Parent material: Sandy and gravelly outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 226D—Kalkaska-Cusino complex, 6 to 15 percent slopes

# Setting

Landform: Disintegration moraines; outwash plains; kame terraces

#### Average Map Unit Composition

60 percent Kalkaska and similar soils 35 percent Cusino and similar soils 5 percent Waiska and similar soils

### Description of Major Components

#### Kalkaska

# **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low

Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Cusino

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 8 inches; loamy sand Bhs—8 to 10 inches; loamy sand Bs1,Bs2—10 to 17 inches; sand BC,C—17 to 80 inches; gravelly sand

# **Soil Properties and Qualities**

Parent material: Sandy and gravelly outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

# Land Use

Dominant land use: Forestland

# 226E—Kalkaska-Cusino complex, 15 to 35 percent slopes

#### Setting

Landform: Disintegration moraines; outwash plains; kame terraces

#### Average Map Unit Composition

55 percent Kalkaska and similar soils

35 percent Cusino and similar soils

5 percent Waiska and similar soils

2 percent Deford and similar soils

2 percent Wallace and similar soils

1 percent Tawas and similar soils

# Description of Major Components

# Kalkaska

#### **Typical Profile**

A-0 to 2 inches: sand

E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

# Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 15 to 35 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Cusino

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 8 inches; loamy sand Bhs—8 to 10 inches; loamy sand Bs1,Bs2—10 to 17 inches; sand BC,C—17 to 80 inches; gravelly sand

# **Soil Properties and Qualities**

Parent material: Sandy and gravelly outwash

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

# Land Use

Dominant land use: Forestland

# 226F—Kalkaska-Cusino complex, 35 to 70 percent slopes

#### Setting

Landform: Disintegration moraines; outwash plains; kame terraces

# **Average Map Unit Composition**

55 percent Kalkaska and similar soils30 percent Cusino and similar soils7 percent Waiska and similar soils5 percent Wallace and similar soils

2 percent Deford and similar soils

1 percent Tawas and similar soils

# Description of Major Components

#### Kalkaska

# **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 35 to 70 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Cusino

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 8 inches; loamy sand Bhs—8 to 10 inches; loamy sand Bs1,Bs2—10 to 17 inches; sand BC,C—17 to 80 inches; gravelly sand

#### **Soil Properties and Qualities**

Parent material: Sandy and gravelly outwash

Slope: 35 to 70 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

# 227A—Halfaday sand, 0 to 3 percent slopes

# Setting

Landform: Outwash plains

# Average Map Unit Composition

90 percent Halfaday and similar soils 5 percent Paquin and similar soils 3 percent Au Gres and similar soils 2 percent Deford and similar soils

# Description of Major Components

# Halfaday

# **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand BC,C—25 to 80 inches; sand

# **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 0 to 3 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)

Ponding: None

# Land Use

Dominant land use: Forestland

# 232B—Shelldrake sand, 0 to 8 percent slopes

### Setting

Landform: Beach ridges

# Average Map Unit Composition

90 percent Shelldrake and similar soils

5 percent Wurtsmith and similar soils

3 percent Meehan and similar soils

2 percent Deford and similar soils

# **Description of Major Components**

#### **Shelldrake**

# **Typical Profile**

Oe—0 to 1 inch; slightly decomposed plant material Oa—1 to 3 inches; highly decomposed plant material

A—3 to 4 inches; sand C—4 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Beach sand

Slope: 0 to 8 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

# Land Use

Dominant land use: Forestland

# 233B—Abbaye-Zeba complex, 0 to 6 percent slopes, very stony

### Setting

Landform: Ground moraines

# **Average Map Unit Composition**

60 percent Abbaye and similar soils

25 percent Zeba and similar soils

5 percent Jacobsville and similar soils

5 percent Munising and similar soils

5 percent Skanee and similar soils

#### **Description of Major Components**

#### **Abbaye**

### **Typical Profile**

Oi—0 to 2 inches; slightly decomposed plant material

A-2 to 4 inches; fine sandy loam

E-4 to 13 inches; loamy sand

Bs1,Bs2—13 to 25 inches; sandy loam

B/E—25 to 32 inches; loamy sand, sandy loam

2R—32 inches; unweathered bedrock

### **Soil Properties and Qualities**

Parent material: Lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 4.3 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.7 feet (April, October)

Ponding: None

#### Zeba

### **Typical Profile**

A—0 to 2 inches; cobbly fine sandy loam E—2 to 5 inches; cobbly fine sandy loam Bs—5 to 13 inches; cobbly fine sandy loam E',B/E—13 to 33 inches; sandy loam 2R—33 inches; unweathered bedrock

# Soil Properties and Qualities

Parent material: Loamy drift

Slope: 0 to 3 percent

Hazard of soil blowing: Slight Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 4.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 0.5 foot to 2.8 feet (May)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 234A—Levasseur-Burt complex, 0 to 3 percent slopes, very stony

### Setting

Landform: Kame terraces on moraines

# Average Map Unit Composition

55 percent Levasseur and similar soils

35 percent Burt and similar soils

5 percent Sauxhead and similar soils

3 percent Skandia and similar soils

2 percent Jacobsville and similar soils

# **Description of Major Components**

#### Levasseur

# **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material Oa—1 to 3 inches; highly decomposed plant material

E—3 to 8 inches; extremely flaggy sand Bw—8 to 13 inches; extremely flaggy sand

2R—13 inches; bedrock

### **Soil Properties and Qualities**

Parent material: Sandy and gravelly glaciofluvial deposits

Slope: 0 to 3 percent

Hazard of soil blowing: Slight
Surface runoff class: Negligible
Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 0.1 inch to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (April)

Ponding: None

#### **Burt**

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 5 inches; mucky sand Cg,C—5 to 19 inches; sand 2R—19 inches; bedrock

# **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 1 percent

Hazard of soil blowing: Slight
Surface runoff class: Negligible
Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 1.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October, November)

Months in which ponding does not occur: January, February, June, July, August, September, December

#### Land Use

Dominant land use: Forestland

# 235B—Sauxhead-Burt complex, 0 to 4 percent slopes, rocky, very stony

# Setting

Landform: Benches; moraines

# Average Map Unit Composition

60 percent Sauxhead and similar soils

30 percent Burt and similar soils

5 percent Levasseur and similar soils

3 percent Skandia and similar soils

2 percent Rock outcrop

# Description of Major Components

#### Sauxhead

# **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 4 inches; sandy loam

2Bw—4 to 14 inches; very channery loamy sand 3Cr—14 to 17 inches; weathered bedrock

3R—17 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy and channery sandstone; glaciofluvial deposits

Slope: 0 to 4 percent

Hazard of soil blowing: Slight Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to

lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 0.8 inch to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 1.4 feet (April, May, October, November)

Ponding: None

#### Burt

### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 5 inches; mucky sand

Cg,C—5 to 19 inches; sand 2R—19 inches; bedrock

### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 2 percent

Hazard of soil blowing: Slight
Surface runoff class: Negligible
Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 1.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland (fig. 4)

# 236B—Waiska stony sandy loam, 1 to 6 percent slopes, extremely bouldery

# Setting

Landform: Benches

#### Average Map Unit Composition

85 percent Waiska and similar soils

9 percent Chocolay and similar soils

2 percent Buckroe and similar soils

2 percent Jacobsville and similar soils

2 percent Sauxhead and similar soils

#### **Description of Major Components**

### Waiska

### **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 4 inches; stony sandy loam
Bhs—4 to 8 inches; gravelly sand
Bs—8 to 18 inches; very gravelly sand
BC,C—18 to 80 inches; very gravelly sand

#### **Soil Properties and Qualities**

Parent material: Sandy and gravelly outwash

Slope: 1 to 6 percent



Figure 4.—A perched water table in an area of Sauxhead-Burt complex, 0 to 4 percent slopes, rocky, very stony. Summer and winter are the best seasons for logging activities in areas of these soils.

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 1.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

# 236D—Waiska stony sandy loam, 6 to 15 percent slopes, extremely bouldery

# Setting

Landform: Benches

# Average Map Unit Composition

85 percent Waiska and similar soils 7 percent Buckroe and similar soils 3 percent Chocolay and similar soils 3 percent Sauxhead and similar soils 2 percent Jacobsville and similar soils

# **Description of Major Components**

#### Waiska

# **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 4 inches; stony sandy loam
Bhs—4 to 8 inches; gravelly sand
Bs—8 to 18 inches; very gravelly sand
BC,C—18 to 80 inches; very gravelly sand

# **Soil Properties and Qualities**

Parent material: Sandy and gravelly outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 1.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 237B—Chatham-Davies complex, 0 to 6 percent slopes

# Setting

Landform: Knolls in glacial drainage channels

#### Average Map Unit Composition

65 percent Chatham and similar soils 20 percent Davies and similar soils 6 percent Shoepac and similar soils 4 percent Traunik and similar soils 3 percent McMaster and similar soils 2 percent Tawas and similar soils

## Description of Major Components

#### Chatham

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 6 inches; gravelly fine sandy loam Bs1—6 to 20 inches; gravelly fine sandy loam Bs2—20 to 39 inches; flaggy fine sandy loam

2C-39 to 80 inches; extremely flaggy fine sandy loam

## **Soil Properties and Qualities**

Parent material: Loamy glacial outburst flood deposits

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Davies**

## **Typical Profile**

Oa—0 to 4 inches; very cobbly muck Bg—4 to 11 inches; very cobbly sandy loam C1,C2—11 to 80 inches; very cobbly sand

## **Soil Properties and Qualities**

Parent material: Sandy glacial outburst flood deposits

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 3.5 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

## 239B—Longrie-Shingleton complex, 1 to 6 percent slopes

## Setting

Landform: Kame terraces in glacial drainage channels; ground moraines

## Average Map Unit Composition

50 percent Longrie and similar soils

40 percent Shingleton and similar soils

4 percent Namur and similar soils

4 percent Nykanen and similar soils

2 percent Ensign and similar soils

## **Description of Major Components**

## Longrie

## **Typical Profile**

A—0 to 4 inches; fine sandy loam E—4 to 9 inches; fine sandy loam Bhs—9 to 11 inches; fine sandy loam Bs—11 to 27 inches; fine sandy loam 2C—27 to 31 inches; gravelly loam 3R—31 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Loamy till Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Available water capacity: About 5 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Shingleton

### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 4 inches; loamy sand Bhs—4 to 17 inches; loamy sand 2R—17 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Available water capacity: About 1.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 240F—Trout Bay-Gongeau-Shingleton-Rock outcrop complex, 1 to 70 percent slopes

## Setting

Landform: Benches

## Average Map Unit Composition

30 percent Trout Bay and similar soils

25 percent Gongeau and similar soils

20 percent Shingleton and similar soils

15 percent Rock outcrop

5 percent Ruse and similar soils

3 percent Nahma and similar soils

2 percent Nykanen and similar soils

#### **Description of Major Components**

#### **Trout Bay**

#### **Typical Profile**

Oa—0 to 19 inches; muck

2Cr—19 to 34 inches; weathered bedrock 2R—34 inches; unweathered bedrock

### **Soil Properties and Qualities**

Parent material: Herbaceous material; woody material

Slope: 1 to 25 percent Hazard of soil blowing: Slight Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 16 to 50 inches to paralithic bedrock; 17 to 51 inches to

lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 7.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October, November)

Months in which ponding does not occur: January, February, July, August, September, December

## Gongeau

## **Typical Profile**

Oa—0 to 5 inches; muck

A-5 to 7 inches; mucky loamy sand

2C-7 to 18 inches; sand

2Cr—18 to 29 inches; weathered bedrock 2R—29 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 30 inches to

lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Shingleton

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 4 inches; loamy sand Bhs—4 to 17 inches; loamy sand 2R—17 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 25 to 70 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Available water capacity: About 1.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 241—Cathro-Gay mucks

## Setting

Landform: Depressions and drainageways on ground moraines

## Average Map Unit Composition

55 percent Cathro and similar soils 35 percent Gay and similar soils

6 percent Skanee and similar soils

2 percent Munising and similar soils

2 percent Zeba and similar soils

## Description of Major Components

#### Cathro

## **Typical Profile**

Oa1,Oa2,Oa3—0 to 46 inches; muck C—46 to 80 inches; fine sandy loam

## **Soil Properties and Qualities**

Parent material: Woody material over lodgment till

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 20.6 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

## Gay

## **Typical Profile**

Oa—0 to 4 inches; muck

A—4 to 7 inches; fine sandy loam Eg—7 to 11 inches; sandy loam Bw—11 to 16 inches; sandy loam BC,C—16 to 80 inches; sandy loam

## **Soil Properties and Qualities**

Parent material: Loamy till Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 8.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

### Land Use

Dominant land use: Forestland

## 242B—Kalkaska sand, 0 to 6 percent slopes, severely burned

## Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Kalkaska and similar soils 5 percent Kinross and similar soils

### Description of Major Components

## Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland (fig. 5)

## 242D—Kalkaska sand, 6 to 15 percent slopes, severely burned

## Setting

Landform: Outwash plains

Average Map Unit Composition

95 percent Kalkaska and similar soils 5 percent Kinross and similar soils

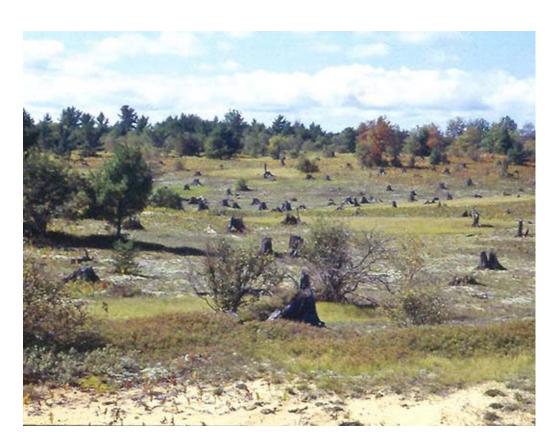


Figure 5.—An area of Kalkaska sand, 0 to 6 percent slopes, severely burned, on the Kingston Plains. Previous fires have hindered succession back to a forest community.

## **Description of Major Components**

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Outwash Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

## 242F—Kalkaska sand, 35 to 70 percent slopes, severely burned

#### Setting

Landform: Pitted outwash plains

## Average Map Unit Composition

90 percent Kalkaska and similar soils 5 percent Pelkie and similar soils 3 percent Evart and similar soils 2 percent Kinross and similar soils

## **Description of Major Components**

## Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 35 to 70 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

## 243—Markey mucky peat

## Setting

Landform: Ground moraines; outwash plains; lake plains

## Average Map Unit Composition

90 percent Markey and similar soils 10 percent Kinross and similar soils

## Description of Major Components

## Markey

#### **Typical Profile**

Oe—0 to 3 inches; mucky peat Oa—3 to 20 inches; muck Cg—20 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Herbaceous material over sandy glaciofluvial deposits

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 10.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August, September, December

#### Land Use

Dominant land use: Wetland wildlife habitat

## 245B—Trout Bay-Lupton-Gongeau complex, 0 to 6 percent slopes

## Setting

Landform: Drainageways and depression in glacial drainage channels

## **Average Map Unit Composition**

- 40 percent Trout Bay and similar soils
- 30 percent Lupton and similar soils
- 20 percent Gongeau and similar soils
- 4 percent Jeske and similar soils
- 3 percent Au Train and similar soils
- 3 percent Ruse and similar soils

## Description of Major Components

## **Trout Bay**

## **Typical Profile**

Oa—0 to 19 inches; muck

2Cr—19 to 34 inches; weathered bedrock 2R—34 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Herbaceous material; woody material

Slope: 0 to 4 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: 16 to 50 inches to paralithic bedrock; 17 to 51 inches to

lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 7.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

#### Lupton

#### **Typical Profile**

Oi—0 to 4 inches; peat Oa—4 to 80 inches; muck

## **Soil Properties and Qualities**

Parent material: Woody material

Slope: 0 to 4 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Available water capacity: About 24.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

## Gongeau

## **Typical Profile**

Oa—0 to 5 inches; muck

A-5 to 7 inches; mucky loamy sand

2C-7 to 18 inches; sand

2Cr—18 to 29 inches; weathered bedrock 2R—29 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 30 inches to

lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 3.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

## 246B—Garlic sand, 0 to 6 percent slopes

## Setting

Landform: Disintegration moraines; pitted outwash plains

## Average Map Unit Composition

90 percent Garlic and similar soils 5 percent Finch and similar soils 5 percent Okeefe and similar soils

## Description of Major Components

#### Garlic

## **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 11 inches; sand Bs—11 to 20 inches; sand BC—20 to 29 inches; sand C—29 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

## 246D—Garlic sand, 6 to 15 percent slopes

### Setting

Landform: Disintegration moraines; pitted outwash plains

## Average Map Unit Composition

90 percent Garlic and similar soils 5 percent Finch and similar soils 5 percent Okeefe and similar soils

## **Description of Major Components**

## Garlic

### **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 11 inches; sand Bs—11 to 20 inches; sand BC—20 to 29 inches; sand C—29 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

## 246E—Garlic sand, 15 to 35 percent slopes

## Setting

Landform: Disintegration moraines; pitted outwash plains

## Average Map Unit Composition

90 percent Garlic and similar soils 5 percent Finch and similar soils 5 percent Kinross and similar soils

## **Description of Major Components**

### Garlic

## **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 11 inches; sand Bs—11 to 20 inches; sand BC—20 to 29 inches; sand C1,C2—29 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 15 to 35 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

## 248B—Escanaba-Greylock complex, 1 to 6 percent slopes Setting

Landform: Ground moraines

## **Average Map Unit Composition**

50 percent Escanaba and similar soils 40 percent Greylock and similar soils

3 percent Kalkaska and similar soils

3 percent Munising and similar soils

2 percent Blue Lake and similar soils

1 percent Charlevoix and similar soils

1 percent Cookson and similar soils

## Description of Major Components

#### Escanaba

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A-1 to 3 inches; sand

E—3 to 6 inches; loamy fine sand

Bs1,Bs2—6 to 26 inches; loamy fine sand 2E/B—26 to 35 inches; fine sandy loam 2Bt—35 to 42 inches; fine sandy loam

2C-42 to 80 inches; gravelly fine sandy loam

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over loamy lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 6.9 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Greylock

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; fine sandy loam E—6 to 7 inches; sandy loam

Bhs,Bs—7 to 19 inches; sandy loam E/B,B/E—19 to 34 inches; sandy loam C—34 to 80 inches; sandy loam

## **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 7.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 248D—Escanaba-Greylock complex, 6 to 15 percent slopes

#### Setting

Landform: Ground moraines

## Average Map Unit Composition

50 percent Escanaba and similar soils

40 percent Greylock and similar soils

3 percent Kalkaska and similar soils

3 percent Munising and similar soils

2 percent Blue Lake and similar soils

2 percent Charlevoix and similar soils

## Description of Major Components

## Escanaba

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 3 inches; sand

E-3 to 6 inches; loamy fine sand

Bs1,Bs2—6 to 26 inches; loamy fine sand 2E/B—26 to 35 inches; fine sandy loam 2Bt—35 to 42 inches; fine sandy loam

2C-42 to 80 inches; gravelly fine sandy loam

## **Soil Properties and Qualities**

Parent material: Sandy outwash over loamy lodgment till

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 6.9 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Greylock

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; fine sandy loam E—6 to 7 inches; sandy loam Bhs,Bs—7 to 19 inches; sandy loam E/B,B/E—19 to 34 inches; sandy loam C—34 to 80 inches; sandy loam

## **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 7.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

### Land Use

Dominant land use: Forestland

## 248E—Escanaba-Greylock complex, 15 to 35 percent slopes

#### Setting

Landform: Ground moraines

## Average Map Unit Composition

50 percent Escanaba and similar soils 40 percent Greylock and similar soils 5 percent Cusino and similar soils 3 percent Blue Lake and similar soils 2 percent Kalkaska and similar soils

## Description of Major Components

#### Escanaba

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 3 inches; sand

E-3 to 6 inches; loamy fine sand

Bs1,Bs2—6 to 26 inches; loamy fine sand 2E/B—26 to 35 inches; fine sandy loam 2Bt—35 to 42 inches; fine sandy loam

2C-42 to 80 inches; gravelly fine sandy loam

## **Soil Properties and Qualities**

Parent material: Sandy outwash over loamy lodgment till

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 6.9 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Greylock

#### **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; fine sandy loam E—6 to 7 inches; sandy loam Bhs,Bs—7 to 19 inches; sandy loam E/B,B/E—19 to 34 inches; sandy loam C—34 to 80 inches; sandy loam

## Soil Properties and Qualities

Parent material: Loamy lodgment till

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: High

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 7.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 249B—Sauxhead-Skandia complex, 0 to 4 percent slopes Setting

Landform: Benches; moraines

## Average Map Unit Composition

55 percent Sauxhead and similar soils 35 percent Skandia and similar soils 3 percent Burt and similar soils

3 percent Chocolay and similar soils 2 percent Chabeneau and similar soils

2 percent Levasseur and similar soils

## Description of Major Components

#### Sauxhead

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 4 inches; sandy loam

2Bw—4 to 14 inches; very channery loamy sand 3Cr—14 to 17 inches; weathered bedrock 3R—17 inches; unweathered bedrock

### **Soil Properties and Qualities**

Parent material: Sandy and channery sandstone; glaciofluvial deposits

Slope: 0 to 4 percent

Hazard of soil blowing: Slight Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to

lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 0.8 inch to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 1.4 feet (April, May, October, November)

Ponding: None

#### Skandia

## **Typical Profile**

Oe—0 to 4 inches; mucky peat Oa—4 to 26 inches; muck

2Cr—26 to 31 inches; weathered bedrock 2R—31 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Woody material; herbaceous material

Slope: 0 to 1 percent

Hazard of soil blowing: Slight Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 16 to 50 inches to paralithic bedrock; 16 to 51 inches to

lithic bedrock

Drainage class: Very poorly drained

Available water capacity: About 10.8 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, June, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, June, October,

November)

Months in which ponding does not occur: January, February, July, August,

September, December

#### Land Use

Dominant land use: Forestland

## 250B—Chocolay-Jacobsville complex, 0 to 6 percent slopes, extremely stony

## Setting

Landform: Moraines

## Average Map Unit Composition

55 percent Chocolay and similar soils

30 percent Jacobsville and similar soils

5 percent Abbaye and similar soils

3 percent Paavola and similar soils

3 percent Sauxhead and similar soils

2 percent Munising and similar soils

2 percent Skandia and similar soils

## Description of Major Components

## Chocolay

#### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

A—2 to 3 inches; very stony fine sandy loam E—3 to 8 inches; very stony fine sandy loam Bhs—8 to 14 inches; very stony fine sandy loam

Bs—14 to 27 inches; very gravelly sandy loam

2R—27 inches; bedrock

#### **Soil Properties and Qualities**

Parent material: Loamy till Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 2.3 feet (April, October)

Ponding: None

#### Jacobsville

## **Typical Profile**

Oa—0 to 5 inches; muck E—5 to 9 inches; sandy loam Bw—9 to 23 inches; sandy loam C—23 to 36 inches; sandy loam 2R—36 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 0 to 2 percent

Hazard of soil blowing: Slight Surface runoff class: Very low Potential for frost action: High

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 6.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

## Land Use

Dominant land use: Forestland

## 251B—Greylock fine sandy loam, 1 to 6 percent slopes Setting

Landform: Ground moraines

## Average Map Unit Composition

90 percent Greylock and similar soils

4 percent Blue Lake and similar soils

2 percent Charlevoix and similar soils

2 percent Cookson and similar soils

2 percent Escanaba and similar soils

## **Description of Major Components**

## **Greylock**

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; fine sandy loam E—6 to 7 inches; sandy loam Bhs,Bs—7 to 19 inches; sandy loam E/B,B/E—19 to 34 inches; sandy loam C—34 to 80 inches; sandy loam

## **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 7.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 251D—Greylock fine sandy loam, 6 to 15 percent slopes Setting

Landform: Ground moraines

## Average Map Unit Composition

85 percent Greylock and similar soils 6 percent Blue Lake and similar soils

4 percent Escanaba and similar soils 3 percent Dillingham and similar soils

2 percent Charlevoix and similar soils

## Description of Major Components

#### Greylock

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 6 inches; fine sandy loam E—6 to 7 inches; sandy loam Bhs,Bs—7 to 19 inches; sandy loam E/B,B/E—19 to 34 inches; sandy loam C—34 to 80 inches; sandy loam

## **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 7.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

## 252A—Finch-Kinross complex, 0 to 3 percent slopes

## Setting

Landform: Lake plains; outwash plains

## Average Map Unit Composition

50 percent Finch and similar soils 40 percent Kinross and similar soils 5 percent Paquin and similar soils 3 percent Dawson and similar soils 2 percent Garlic and similar soils

#### **Description of Major Components**

## Finch

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 11 inches; sand Bsm—11 to 42 inches; sand C—42 to 80 inches; fine sand

## **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 3 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 7 to 13 inches to ortstein

Drainage class: Somewhat poorly drained

Available water capacity: About 4 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)

Ponding: None

#### **Kinross**

## **Typical Profile**

Oa—0 to 3 inches; muck Eg—3 to 14 inches; sand Bhs—14 to 22 inches; sand Bs—22 to 35 inches; sand C—35 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

## 254C—Kalkaska-Blue Lake complex, 1 to 12 percent slopes, dissected

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

55 percent Kalkaska and similar soils

35 percent Blue Lake and similar soils

3 percent Dillingham and similar soils

3 percent Steuben and similar soils

2 percent Deford and similar soils

2 percent Halfaday and similar soils

## Description of Major Components

#### Kalkaska

#### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 1 to 12 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Blue Lake**

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

## Soil Properties and Qualities

Parent material: Sandy till (supraglacial)

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

## 254E—Kalkaska-Blue Lake complex, 8 to 35 percent slopes, dissected

#### Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

55 percent Kalkaska and similar soils 35 percent Blue Lake and similar soils 5 percent Dillingham and similar soils 3 percent Steuben and similar soils 2 percent Deford and similar soils

## **Description of Major Components**

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 8 to 35 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Blue Lake**

#### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 8 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 254F—Kalkaska-Blue Lake complex, 15 to 70 percent slopes, dissected

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

55 percent Kalkaska and similar soils 35 percent Blue Lake and similar soils 5 percent Dillingham and similar soils 3 percent Steuben and similar soils 2 percent Deford and similar soils

## Description of Major Components

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 15 to 70 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## **Blue Lake**

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 15 to 70 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

## 255D—Wallace sand, 1 to 15 percent slopes

## Setting

Landform: Lake plains; outwash plains; beach ridges

## Average Map Unit Composition

95 percent Wallace and similar soils 3 percent Paquin and similar soils 2 percent Finch and similar soils

## Description of Major Components

#### Wallace

## **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 10 inches; sand Bhs—10 to 11 inches; sand Bhsm—11 to 21 inches; sand Bsm—21 to 26 inches; sand BC—26 to 59 inches; sand C—59 to 80 inches; sand

## Soil Properties and Qualities

Parent material: Beach sand

Slope: 1 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 8 to 18 inches to ortstein

Drainage class: Well drained

Available water capacity: About 2.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 256B—Whitewash sand, 0 to 4 percent slopes

## Setting

Landform: Stream terraces

## Average Map Unit Composition

95 percent Whitewash and similar soils 5 percent Deer Park and similar soils

## Description of Major Components

## Whitewash

## **Typical Profile**

Oe—0 to 3 inches; moderately decomposed plant material

C-3 to 7 inches; sand

Ab—7 to 9 inches; fine sandy loam

C'—9 to 80 inches; stratified sand to fine sandy loam to silt loam

## Soil Properties and Qualities

Parent material: Sandy alluvium

Slope: 0 to 4 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

## 266A—Spot-Finch complex, 0 to 3 percent slopes

## Setting

Landform: Lake plains; outwash plains

## Average Map Unit Composition

50 percent Spot and similar soils 40 percent Finch and similar soils 5 percent Dawson and similar soils 5 percent Paquin and similar soils

## **Description of Major Components**

### **Spot**

## **Typical Profile**

Oi—0 to 2 inches; peat E—2 to 8 inches; sand Bhsm—8 to 10 inches; sand B—10 to 18 inches; sand C—18 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 2 percent

Hazard of soil blowing: Slight Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: 8 to 12 inches to ortstein

Drainage class: Poorly drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### **Finch**

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 11 inches; sand Bsm—11 to 42 inches; sand C—42 to 80 inches; fine sand

## **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 3 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 7 to 13 inches to ortstein

Drainage class: Somewhat poorly drained

Available water capacity: About 2.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)

Ponding: None

## Land Use

Dominant land use: Forestland

## 267A—Finch sand, 0 to 3 percent slopes

## Setting

Landform: Lake plains; outwash plains

## Average Map Unit Composition

85 percent Finch and similar soils 10 percent Spot and similar soils 5 percent Paquin and similar soils

## Description of Major Components

#### **Finch**

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 11 inches; sand Bsm—11 to 42 inches; sand C—42 to 80 inches; fine sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 3 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: 7 to 13 inches to ortstein

Drainage class: Somewhat poorly drained

Available water capacity: About 2.8 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)

Ponding: None

## Land Use

Dominant land use: Forestland

# 268C—Munising, calcareous substratum-Frohling, calcareous substratum-Cookson fine sandy loams, 1 to 12 percent slopes, dissected

## Setting

Landform: Ground moraines

## Average Map Unit Composition

40 percent Munising and similar soils

30 percent Frohling and similar soils

20 percent Cookson and similar soils

4 percent Kalkaska and similar soils

3 percent Reade and similar soils

2 percent Shingleton and similar soils

1 percent Au Train and similar soils

## **Description of Major Components**

## Munising

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 3 inches; fine sandy loam Bhs—3 to 6 inches; fine sandy loam Bs—6 to 23 inches; fine sandy loam

2E/Bx—23 to 38 inches; loamy sand, fine sandy loam 2B/Ex—38 to 50 inches; fine sandy loam, loamy sand 2BC—50 to 63 inches; gravelly fine sandy loam 2C—63 to 80 inches; gravelly fine sandy loam

## **Soil Properties and Qualities**

Parent material: Eolian deposits over lodgment till

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

## **Frohling**

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 5 inches; fine sandy loam Bs—5 to 24 inches; fine sandy loam

2E/Bx,2B/Ex—24 to 73 inches; fine sandy loam 3C—73 to 80 inches; gravelly fine sandy loam

## **Soil Properties and Qualities**

Parent material: Lodgment till

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 4.6 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Cookson

## **Typical Profile**

Oi—0 to 3 inches; slightly decomposed plant material

E—3 to 7 inches; fine sandy loam Bhs—7 to 11 inches; fine sandy loam Bs—11 to 16 inches; sandy loam 2E—16 to 21 inches; fine sandy loam 2Bt—21 to 31 inches; fine sandy loam 2BC—31 to 36 inches; fine sandy loam

3R-36 inches; bedrock

## **Soil Properties and Qualities**

Parent material: Coarse-loamy till

Slope: 1 to 12 percent Hazard of soil blowing: Slight Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 269E—Frohling, calcareous substratum-Garlic-Cookson complex, 8 to 35 percent slopes, dissected

#### Setting

Landform: Ground moraines

## Average Map Unit Composition

50 percent Frohling and similar soils

20 percent Garlic and similar soils

20 percent Cookson and similar soils

4 percent Chatham and similar soils

3 percent Alcona and similar soils

3 percent Ensley and similar soils

## **Description of Major Components**

## **Frohling**

#### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 5 inches; fine sandy loam Bs—5 to 24 inches; fine sandy loam

2E/Bx,2B/Ex—24 to 73 inches; fine sandy loam 3C—73 to 80 inches; gravelly fine sandy loam

## **Soil Properties and Qualities**

Parent material: Lodgment till

Slope: 8 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: High

Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 4.6 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Garlic

## **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 11 inches; sand Bs—11 to 20 inches; sand BC—20 to 29 inches; sand C1,C2—29 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits

Slope: 8 to 35 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Cookson

## **Typical Profile**

Oi—0 to 3 inches; slightly decomposed plant material

E—3 to 7 inches; fine sandy loam Bhs—7 to 11 inches; fine sandy loam Bs—11 to 16 inches; sandy loam 2E—16 to 21 inches; fine sandy loam 2Bt—21 to 31 inches; fine sandy loam 2BC—31 to 36 inches; fine sandy loam

3R—36 inches; bedrock

## **Soil Properties and Qualities**

Parent material: Coarse-loamy till

Slope: 8 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: High

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

## 272C—Munising-Yalmer-Frohling complex, calcareous substratum, 1 to 12 percent slopes, dissected

## Setting

Landform: Ground moraines

## Average Map Unit Composition

40 percent Munising and similar soils

30 percent Yalmer and similar soils

20 percent Frohling and similar soils

3 percent Escanaba and similar soils

3 percent Kalkaska and similar soils

2 percent Ensley and similar soils

2 percent Halfaday and similar soils

#### **Description of Major Components**

#### Munising

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 3 inches; fine sandy loam Bhs—3 to 6 inches; fine sandy loam Bs—6 to 23 inches; fine sandy loam

2E/Bx—23 to 38 inches; loamy sand, fine sandy loam 2B/Ex—38 to 50 inches; fine sandy loam, loamy sand 2BC—50 to 63 inches; gravelly fine sandy loam 2C—63 to 80 inches; gravelly fine sandy loam

## **Soil Properties and Qualities**

Parent material: Eolian deposits over lodgment till

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

#### Yalmer

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 2 inches; loamy sand

E—2 to 5 inches; sand

Bhs—5 to 16 inches; loamy sand

Bs—16 to 28 inches; gravelly loamy sand 2E/Bx—28 to 36 inches; loamy sand 2B/Ex—36 to 62 inches; fine sandy loam 3C—62 to 80 inches; fine sandy loam

## **Soil Properties and Qualities**

Parent material: Outwash over lodgment till

Slope: 1 to 12 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1.0 to 2.5 feet (April)

Ponding: None

#### Frohling

#### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 5 inches; fine sandy loam Bs—5 to 24 inches; fine sandy loam

2E/Bx,2B/Ex-24 to 73 inches; fine sandy loam, loamy fine sand

3C-73 to 80 inches; gravelly fine sandy loam

## **Soil Properties and Qualities**

Parent material: Lodgment till

Slope: 6 to 12 percent

Hazard of soil blowing: Moderate

Surface runoff class: High

Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 4.6 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 275B—Munising, calcareous substratum-Cookson fine sandy loams, 1 to 6 percent slopes

## Setting

Landform: Ground moraines

## Average Map Unit Composition

50 percent Munising and similar soils 40 percent Cookson and similar soils 5 percent Frohling and similar soils 3 percent Reade and similar soils 2 percent Blue Lake and similar soils

## Description of Major Components

## Munising

## **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material E—1 to 3 inches; fine sandy loam

Bhs—3 to 6 inches; fine sandy loam
Bs—6 to 23 inches; fine sandy loam

2E/Bx—23 to 38 inches; loamy sand, fine sandy loam 2B/Ex—38 to 50 inches; fine sandy loam, loamy sand 2BC—50 to 63 inches; gravelly fine sandy loam 2C—63 to 80 inches; gravelly fine sandy loam

#### **Soil Properties and Qualities**

Parent material: Eolian deposits over lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: 15 to 25 inches to a fragipan

Drainage class: Moderately well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Moderate

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1 to 2 feet (April)

Ponding: None

#### Cookson

## **Typical Profile**

Oi—0 to 3 inches; slightly decomposed plant material

E—3 to 7 inches; fine sandy loam Bhs—7 to 11 inches; fine sandy loam Bs—11 to 16 inches; sandy loam 2E—16 to 21 inches; fine sandy loam 2Bt—21 to 31 inches; fine sandy loam

2BC-31 to 36 inches; fine sandy loam

3R-36 inches: bedrock

## **Soil Properties and Qualities**

Parent material: Coarse-loamy till

Slope: 1 to 6 percent

Hazard of soil blowing: Slight Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 281E—Mongo silt loam, 8 to 45 percent slopes, dissected Setting

Landform: Lake plains

## Average Map Unit Composition

95 percent Mongo and similar soils 3 percent Bowers and similar soils 2 percent Pickford and similar soils

#### Description of Major Components

#### Mongo

### **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

A,A/E—1 to 6 inches; silt loam E/B,B/E—6 to 22 inches; silt loam Bt—22 to 38 inches; silty clay

C—38 to 80 inches; stratified silt loam to silt to silty clay loam

#### **Soil Properties and Qualities**

Parent material: Lacustrine deposits

Slope: 8 to 45 percent

Hazard of soil blowing: Moderate Surface runoff class: Very high Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 11.5 inches to a depth of 60 inches

Shrink-swell potential: Very high

Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1.5 to 6.7 feet (April)

Ponding: None

## Land Use

Dominant land use: Forestland

## 282B—Furlong-Shingleton complex, 1 to 6 percent slopes

## Setting

Landform: Benches on kame terraces

## Average Map Unit Composition

50 percent Furlong and similar soils

40 percent Shingleton and similar soils

3 percent Longrie and similar soils

3 percent Namur and similar soils

2 percent Nykanen and similar soils

2 percent Ruse and similar soils

## Description of Major Components

#### **Furlong**

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 2 inches; sand E—2 to 5 inches; sand Bhs—5 to 7 inches; sand Bs1,Bs2—7 to 19 inches; sand C—19 to 22 inches; sand

2R—22 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Available water capacity: About 1.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Shingleton**

#### **Typical Profile**

AE—0 to 1 inch; highly decomposed plant material

E—1 to 7 inches; loamy sand Bhs—7 to 8 inches; loamy sand Bs—8 to 11 inches; loamy sand 2R—11 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Available water capacity: About 0.9 inch to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

## 282D—Furlong-Shingleton complex, 6 to 15 percent slopes

#### Setting

Landform: Benches on kame terraces

## Average Map Unit Composition

50 percent Furlong and similar soils

40 percent Shingleton and similar soils

4 percent Longrie and similar soils

2 percent Eben and similar soils

2 percent Nykanen and similar soils

2 percent Ruse and similar soils

## Description of Major Components

#### **Furlong**

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 2 inches; sand E—2 to 5 inches; sand Bhs—5 to 7 inches; sand Bs1,Bs2—7 to 19 inches; sand C—19 to 22 inches; sand

2R—22 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Available water capacity: About 1.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## **Shingleton**

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

A—1 to 4 inches; loamy sand Bhs—4 to 17 inches; loamy sand 2R—17 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Available water capacity: About 1.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 284B—Steuben-Blue Lake-Kalkaska complex, 1 to 6 percent slopes

## Setting

Landform: Ground moraines; disintegration moraines

## Average Map Unit Composition

40 percent Steuben and similar soils

30 percent Blue Lake and similar soils

20 percent Kalkaska and similar soils

4 percent Munising and similar soils

2 percent Alcona and similar soils

2 percent Halfaday and similar soils

2 percent Tawas and similar soils

#### Description of Major Components

#### Steuben

## **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 8 inches; fine sandy loam

Bhs1,Bhs2—8 to 16 inches; fine sandy loam Bs—16 to 21 inches; fine sandy loam (B/E)x—21 to 40 inches; fine sandy loam

2E and Bt—40 to 45 inches; sand

2C-45 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Loamy till over sandy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: 17 to 26 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Blue Lake

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

# 284D—Steuben-Blue Lake-Kalkaska complex, 6 to 15 percent slopes

## Setting

Landform: Disintegration moraines

## Average Map Unit Composition

40 percent Steuben and similar soils

25 percent Blue Lake and similar soils

25 percent Kalkaska and similar soils

4 percent Frohling and similar soils

4 percent Waiska and similar soils

2 percent Halfaday and similar soils

#### Description of Major Components

#### Steuben

## **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 8 inches; fine sandy loam

Bhs1,Bhs2—8 to 16 inches; fine sandy loam Bs—16 to 21 inches; fine sandy loam (B/E)x—21 to 40 inches; fine sandy loam

2E and Bt—40 to 45 inches; sand

2C—45 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Loamy till over sandy outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 17 to 26 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Blue Lake

#### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Kalkaska

#### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 284E—Steuben-Blue Lake-Kalkaska complex, 15 to 35 percent slopes

## Setting

Landform: Disintegration moraines

## Average Map Unit Composition

40 percent Steuben and similar soils 30 percent Blue Lake and similar soils 20 percent Kalkaska and similar soils 5 percent Tokiahok and similar soils 3 percent Dillingham and similar soils 2 percent Tawas and similar soils

## Description of Major Components

#### Steuben

## **Typical Profile**

Oe—0 to 2 inches; moderately decomposed plant material E—2 to 8 inches; fine sandy loam
Bhs1,Bhs2—8 to 16 inches; fine sandy loam
Bs—16 to 21 inches; fine sandy loam
(B/E)x—21 to 40 inches; fine sandy loam

2E and Bt—40 to 45 inches; sand

2C-45 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Loamy till over sandy outwash

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: 17 to 26 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Blue Lake

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 7 inches; loamy sand Bhs—7 to 9 inches; loamy sand Bs—9 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Kalkaska

#### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 15 to 35 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 285B—Halfaday-Kinross complex, 0 to 4 percent slopes Setting

Landform: Outwash plains

## Average Map Unit Composition

50 percent Halfaday and similar soils 40 percent Kinross and similar soils 5 percent Kalkaska and similar soils 3 percent Garlic and similar soils 2 percent Tawas and similar soils

## Description of Major Components

#### Halfaday

### **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 9 inches; sand Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand BC,C—25 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 0 to 4 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)

Ponding: None

#### **Kinross**

## **Typical Profile**

Oa—0 to 3 inches; muck Eg—3 to 14 inches; sand Bhs—14 to 22 inches; sand Bs—22 to 35 inches; sand C—35 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 0 to 2 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 4.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

October, November, December)

Depth and months of deepest ponding: 0.2 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

## 286B—Greylock-Cookson fine sandy loams, 1 to 6 percent slopes

## Setting

Landform: Ground moraines

## Average Map Unit Composition

50 percent Greylock and similar soils

40 percent Cookson and similar soils

3 percent Amadon and similar soils

3 percent Blue Lake and similar soils

2 percent Escanaba and similar soils

2 percent Reade and similar soils

## Description of Major Components

## **Greylock**

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A-1 to 6 inches; fine sandy loam E-6 to 7 inches; sandy loam Bhs, Bs—7 to 19 inches; sandy loam E/B,B/E—19 to 34 inches; sandy loam

C—34 to 80 inches; sandy loam

## **Soil Properties and Qualities**

Parent material: Loamy lodgment till

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 7.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Cookson

## **Typical Profile**

Oi—0 to 3 inches; slightly decomposed plant material

E—3 to 7 inches; fine sandy loam Bhs—7 to 11 inches; fine sandy loam Bs—11 to 16 inches; sandy loam 2E—16 to 21 inches; fine sandy loam 2Bt—21 to 31 inches; fine sandy loam

2BC—31 to 36 inches; fine sandy loam

3R-36 inches: bedrock

## **Soil Properties and Qualities**

Parent material: Coarse-loamy till

Slope: 1 to 6 percent

Hazard of soil blowing: Slight Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 287B—McMaster-Davies complex, 0 to 4 percent slopes

## Setting

Landform: Knolls in glacial drainage channels

## Average Map Unit Composition

55 percent McMaster and similar soils

35 percent Davies and similar soils

5 percent Tawas and similar soils

5 percent Traunik and similar soils

## Description of Major Components

#### **McMaster**

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

A—2 to 4 inches; cobbly sandy loam E—4 to 8 inches; cobbly loamy sand Bhs—8 to 11 inches; cobbly sandy loam

2Bs—11 to 24 inches; very gravelly loamy sand 2BC—24 to 39 inches; very gravelly coarse sand 2C—39 to 80 inches; extremely gravelly coarse sand

## Soil Properties and Qualities

Parent material: Gravelly glacial outburst flood deposits

Slope: 0 to 4 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 2.4 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)

Ponding: None

#### **Davies**

#### **Typical Profile**

Oa—0 to 4 inches; very cobbly muck Bg—4 to 11 inches; very cobbly sandy loam C1,C2—11 to 80 inches; very cobbly sand

#### **Soil Properties and Qualities**

Parent material: Gravelly outwash

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: High

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 3.5 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

# 290A—Namur-Ruse complex, 0 to 2 percent slopes, very rocky, very stony

#### Setting

Landform: Glacial drainage channels

## Average Map Unit Composition

50 percent Namur and similar soils

40 percent Ruse and similar soils

5 percent rock outcrop

3 percent Ensign and similar soils

2 percent McMaster and similar soils

#### **Description of Major Components**

#### Namur

#### **Typical Profile**

A—0 to 3 inches; silt loam Bw—3 to 6 inches; silt loam 2R—6 inches; bedrock

## **Soil Properties and Qualities**

Parent material: Loamy till Slope: 0 to 2 percent

Hazard of soil blowing: Slight Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 4 to 10 inches to lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 1.2 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Ruse

#### **Typical Profile**

A—0 to 7 inches; mucky loam

Bw,Bg—7 to 15 inches; flaggy sandy loam

2R—15 inches; bedrock

#### **Soil Properties and Qualities**

Parent material: Loamy pedisediment; loamy till

Slope: 0 to 2 percent

Hazard of soil blowing: Slight Surface runoff class: Low Potential for frost action: High

Depth to restrictive feature: 4 to 20 inches to lithic bedrock

Drainage class: Poorly drained

Available water capacity: About 2.7 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

## 292B—Mashek fine sandy loam, sandy substratum, 0 to 4 percent slopes

#### Setting

Landform: Ground moraines

## Average Map Unit Composition

90 percent Mashek and similar soils 5 percent Cookson and similar soils

3 percent Greylock and similar soils 2 percent Steuben and similar soils

## **Description of Major Components**

#### Mashek

## **Typical Profile**

A—0 to 6 inches; fine sandy loam Bs—6 to 11 inches; loamy sand

E/B,B/E—11 to 38 inches; fine sandy loam, loamy sand

2Cd—38 to 63 inches; gravelly fine sandy loam

3C—63 to 80 inches; very gravelly sand

## **Soil Properties and Qualities**

Parent material: Loamy till over sandy and gravelly outwash

Slope: 0 to 4 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: 35 to 50 inches to dense material

Drainage class: Moderately well drained

Available water capacity: About 5.3 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: 1.0 to 3.1 feet (April)

Ponding: None

## Land Use

Dominant land use: Forestland

## 296D—Islandlake-McMillan complex, 6 to 15 percent slopes

### Setting

Landform: Disintegration moraines; outwash plains

#### Average Map Unit Composition

55 percent Islandlake and similar soils

35 percent McMillan and similar soils

5 percent Steuben and similar soils

3 percent Kinross and similar soils

2 percent Dawson and similar soils

#### Description of Major Components

#### Islandlake

#### **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

AE—1 to 2 inches; sand E—2 to 8 inches; sand Bhs—8 to 9 inches; sand Bs—9 to 41 inches; sand

E and Bt—41 to 80 inches; sand, loamy sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### McMillan

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; fine sandy loam E—4 to 6 inches; fine sandy loam

Bhs—6 to 9 inches; very fine sandy loam Bs1—9 to 16 inches; very fine sandy loam Bs2—16 to 22 inches; loamy fine sand

Bw-22 to 32 inches; sand

E and Bt—32 to 80 inches; stratified sand to loamy sand

## Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

### Land Use

Dominant land use: Forestland

## 296E—Islandlake-McMillan complex, 15 to 35 percent slopes

#### Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

55 percent Islandlake and similar soils 35 percent McMillan and similar soils

5 percent Steuben and similar soils 3 percent Kinross and similar soils 2 percent Dawson and similar soils

## **Description of Major Components**

#### Islandlake

#### **Typical Profile**

Oi-0 to 1 inch; slightly decomposed plant material

AE—1 to 2 inches; sand E—2 to 8 inches; sand Bhs—8 to 9 inches; sand Bs—9 to 41 inches: sand

E and Bt-41 to 80 inches; sand, loamy sand

## Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### McMillan

#### **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

A—1 to 4 inches; fine sandy loam
E—4 to 6 inches; fine sandy loam
Bhs—6 to 9 inches; very fine sandy loam

Bs1—9 to 16 inches; very fine sandy loam Bs2—16 to 22 inches; loamy fine sand

Bw—22 to 32 inches; sand

E and Bt—32 to 80 inches; stratified sand to loamy sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate

Surface runoff class: High

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

## 297B—Rubicon sand, 0 to 6 percent slopes, severely burned

### Setting

Landform: Flats and knolls on pitted outwash plains

## Average Map Unit Composition

95 percent Rubicon and similar soils 3 percent Kinross and similar soils 2 percent Croswell and similar soils

## Description of Major Components

#### Rubicon

## **Typical Profile**

E—0 to 3 inches; sand

Bs1,Bs2,Bs3—3 to 28 inches; sand

BC—28 to 36 inches; sand C1,C2—36 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

Other uses: Building site development

## 297D—Rubicon sand, 6 to 15 percent slopes, severely burned

#### Setting

Landform: Flats and knolls on pitted outwash plains

## Average Map Unit Composition

95 percent Rubicon and similar soils 3 percent Kinross and similar soils 2 percent Croswell and similar soils

#### Description of Major Components

#### Rubicon

## **Typical Profile**

E—0 to 3 inches; sand

Bs1,Bs2,Bs3—3 to 28 inches; sand

BC—28 to 36 inches; sand C1,C2—36 to 80 inches; sand

### Soil Properties and Qualities

Parent material: Sandy outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

## 298B—Wurtsmith-Deford complex, 0 to 6 percent slopes

## Setting

Landform: Outwash plains; beach ridges

## Average Map Unit Composition

55 percent Wurtsmith and similar soils 35 percent Deford and similar soils 6 percent Meehan and similar soils 4 percent Shelldrake and similar soils

## Description of Major Components

#### Wurtsmith

#### **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E-1 to 4 inches; sand

Bw1,Bw2—4 to 24 inches; sand BC,C—24 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Beach sand

Slope: 1 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)

Ponding: None

#### **Deford**

#### **Typical Profile**

Oa—0 to 4 inches; muck C—4 to 80 inches; fine sand

## Soil Properties and Qualities

Parent material: Beach sand

Slope: 0 to 1 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Available water capacity: About 5.5 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: At the surface (January, February, March, April,

May, October, November, December)

Depth and months of deepest ponding: 0.5 foot (March, April, May, October,

November)

Months in which ponding does not occur: January, February, June, July, August,

September, December

#### Land Use

Dominant land use: Forestland

# 299F—Shelldrake fine sand, 2 to 75 percent slopes Setting

Landform: Dunes

#### Average Map Unit Composition

99 percent Shelldrake and similar soils 1 percent Wurtsmith and similar soils

## **Description of Major Components**

#### **Shelldrake**

## **Typical Profile**

Oe—0 to 1 inch; slightly decomposed plant material Oa—1 to 3 inches; highly decomposed plant material

A—3 to 4 inches; fine sand C—4 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy eolian deposits

Slope: 2 to 75 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 300F—Shelldrake-Dune land complex, 2 to 75 percent slopes

#### Setting

Landform: Dunes

## Average Map Unit Composition

61 percent Shelldrake and similar soils

38 percent Dune land

1 percent Wurtsmith and similar soils

## Description of Major Components

#### **Shelldrake**

#### **Typical Profile**

Oe—0 to 1 inch; slightly decomposed plant material Oa—1 to 3 inches; highly decomposed plant material

A—3 to 4 inches; fine sand C—4 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy eolian deposits

Slope: 2 to 75 percent

Hazard of soil blowing: Severe Surface runoff class: Low

Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Recreation

## 301F—Cookson-Nykanen complex, 15 to 50 percent slopes, dissected

#### Setting

Landform: Moraines

## Average Map Unit Composition

55 percent Cookson and similar soils

35 percent Nykanen and similar soils

5 percent Ruse and similar soils

3 percent Frohling and similar soils

2 percent Trout Bay and similar soils

## Description of Major Components

#### Cookson

## **Typical Profile**

Oi—0 to 3 inches; slightly decomposed plant material

E—3 to 7 inches; fine sandy loam Bhs—7 to 11 inches; fine sandy loam Bs—11 to 16 inches; sandy loam 2E—16 to 21 inches; fine sandy loam 2Bt—21 to 31 inches; fine sandy loam 2BC—31 to 36 inches; fine sandy loam

3R—36 inches; bedrock

## **Soil Properties and Qualities**

Parent material: Loamy till Slope: 15 to 50 percent

Hazard of soil blowing: Moderate

Surface runoff class: High

Potential for frost action: Moderate

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Available water capacity: About 5.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Nykanen

## **Typical Profile**

A—0 to 4 inches; very fine sandy loam BA—4 to 14 inches; very fine sandy loam 2Cr—14 to 25 inches; weathered bedrock 2R—25 inches; unweathered bedrock

## **Soil Properties and Qualities**

Parent material: Loamy till Slope: 15 to 45 percent

Hazard of soil blowing: Moderate Surface runoff class: High

Potential for frost action: Moderate

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 32 inches to

lithic bedrock

Drainage class: Moderately well drained

Available water capacity: About 2.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 1.0 to 1.2 feet (April, July, October)

Ponding: None

#### Land Use

Dominant land use: Forestland

## 302B—Dillingham-Kalkaska complex, 1 to 6 percent slopes

## Setting

Landform: Disintegration moraines

#### Average Map Unit Composition

45 percent Dillingham and similar soils40 percent Kalkaska and similar soils10 percent Yalmer and similar soils

5 percent Halfaday and similar soils

## Description of Major Components

#### Dillingham

#### **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 8 inches; loamy sand

Bhs—8 to 11 inches; loamy fine sand Bs—11 to 21 inches; loamy fine sand

E/Bx—21 to 31 inches; loamy sand, sandy loam

C—31 to 80 inches; stratified loamy sand to loamy fine sand to sand

## **Soil Properties and Qualities**

Parent material: Sandy till Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 16 to 28 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits; outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

# 302D—Dillingham-Kalkaska complex, 6 to 15 percent slopes

## Setting

Landform: Disintegration moraines

## Average Map Unit Composition

52 percent Dillingham and similar soils 45 percent Kalkaska and similar soils 2 percent Dawson and similar soils 1 percent Voelker and similar soils

## **Description of Major Components**

## Dillingham

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 8 inches; loamy sand Bhs—8 to 11 inches; loamy sand Bs—11 to 21 inches; loamy fine sand

E/Bx—21 to 31 inches; fine sand, loamy fine sand

C-31 to 80 inches; sand

## Soil Properties and Qualities

Parent material: Glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Medium Potential for frost action: Low

Depth to restrictive feature: 16 to 28 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 3.5 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

### Kalkaska

### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits; outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

## 302E—Dillingham-Kalkaska complex, 15 to 35 percent slopes

#### Setting

Landform: Disintegration moraines

## Average Map Unit Composition

50 percent Dillingham and similar soils 40 percent Kalkaska and similar soils 5 percent Dawson and similar soils 3 percent Alcona and similar soils 2 percent Voelker and similar soils

## Description of Major Components

## Dillingham

#### **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 8 inches; loamy sand Bhs—8 to 11 inches; loamy sand Bs—11 to 21 inches; loamy fine sand

E/Bx—21 to 31 inches; fine sand, loamy fine sand

C-31 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate Surface runoff class: High Potential for frost action: Low

Depth to restrictive feature: 16 to 28 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 3.5 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Kalkaska

#### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits; outwash

Slope: 15 to 35 percent Hazard of soil blowing: Severe Surface runoff class: Low

Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

## 302F—Dillingham-Kalkaska complex, 35 to 70 percent slopes

## Setting

Landform: Disintegration moraines

## Average Map Unit Composition

50 percent Dillingham and similar soils

40 percent Kalkaska and similar soils

5 percent Dawson and similar soils

3 percent Alcona and similar soils

2 percent Voelker and similar soils

## Description of Major Components

## Dillingham

#### **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 8 inches; loamy sand Bhs—8 to 11 inches; loamy sand Bs—11 to 21 inches; loamy fine sand

E/Bx-21 to 31 inches; fine sand, loamy fine sand

C-31 to 80 inches: sand

#### **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits

Slope: 35 to 70 percent

Hazard of soil blowing: Moderate Surface runoff class: High Potential for frost action: Low

Depth to restrictive feature: 16 to 28 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 3.5 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits; outwash

Slope: 35 to 70 percent

Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 303B—Kiva-Trenary fine sandy loams, 1 to 6 percent slopes

#### Setting

Landform: Outwash plains

## Average Map Unit Composition

55 percent Kiva and similar soils

30 percent Trenary and similar soils

5 percent Blue Lake and similar soils

5 percent Islandlake and similar soils

5 percent Traunik and similar soils

## Description of Major Components

#### Kiva

#### **Typical Profile**

A—0 to 3 inches; fine sandy loam E—3 to 6 inches; loamy sand

Bs1—6 to 15 inches; fine sandy loam

2Bs2—15 to 23 inches; gravelly loamy sand

2BC,2C—23 to 80 inches; stratified sand to very gravelly sand to gravelly sand

#### **Soil Properties and Qualities**

Parent material: Loamy eolian deposits over sandy outwash

Slope: 1 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## **Trenary**

## **Typical Profile**

A—0 to 2 inches; fine sandy loam
E—2 to 6 inches; fine sandy loam
Bhs—6 to 12 inches; fine sandy loam
Bs—12 to 17 inches; fine sandy loam
E′—17 to 26 inches; sandy loam
Bt—26 to 37 inches; loam
C—37 to 80 inches; sandy loam

### Soil Properties and Qualities

Parent material: Till Slope: 1 to 6 percent Hazard of soil blowing: S

Hazard of soil blowing: Slight Surface runoff class: Low

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 8.4 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland Other uses: Cropland, pasture

## 303D—Kiva-Trenary fine sandy loams, 6 to 15 percent slopes

### Setting

Landform: Outwash plains

#### Average Map Unit Composition

55 percent Kiva and similar soils 30 percent Trenary and similar soils 5 percent Blue Lake and similar soils 5 percent Islandlake and similar soils 5 percent Traunik and similar soils

## **Description of Major Components**

#### Kiva

## **Typical Profile**

A—0 to 3 inches; fine sandy loam E—3 to 6 inches; loamy sand

Bs1—6 to 15 inches; fine sandy loam 2Bs2—15 to 23 inches; gravelly loamy sand

2BC,2C-23 to 80 inches; stratified sand to very gravelly sand to gravelly sand

#### Soil Properties and Qualities

Parent material: Loamy eolian deposits over sandy outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate

Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## **Trenary**

#### **Typical Profile**

A—0 to 2 inches; fine sandy loam
E—2 to 6 inches; fine sandy loam
Bhs—6 to 12 inches; fine sandy loam
Bs—12 to 17 inches; fine sandy loam
E′—17 to 26 inches; sandy loam
Bt—26 to 37 inches; loam
C—37 to 80 inches; sandy loam

#### **Soil Properties and Qualities**

Parent material: Till
Slope: 6 to 15 percent
Hazard of soil blowing: Slight
Surface runoff class: Medium
Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 8.4 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

Other uses: Pasture

## 303E—Kiva-Trenary fine sandy loams, 15 to 35 percent slopes

## Setting

Landform: Outwash plains

## Average Map Unit Composition

55 percent Kiva and similar soils 30 percent Trenary and similar soils 5 percent Blue Lake and similar soils 5 percent Islandlake and similar soils 5 percent Traunik and similar soils

## Description of Major Components

#### Kiva

## **Typical Profile**

A—0 to 3 inches; fine sandy loam E—3 to 6 inches; loamy sand Bs1—6 to 15 inches; fine sandy loam

2Bs2—15 to 23 inches; gravelly loamy sand

2BC,2C—23 to 80 inches; stratified sand to very gravelly sand to gravelly sand

## **Soil Properties and Qualities**

Parent material: Loamy eolian deposits over sandy outwash

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderate

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## **Trenary**

## **Typical Profile**

A—0 to 2 inches; fine sandy loam
E—2 to 6 inches; fine sandy loam
Bhs—6 to 12 inches; fine sandy loam
Bs—12 to 17 inches; fine sandy loam
E′—17 to 26 inches; sandy loam
Bt—26 to 37 inches; loam
C—37 to 80 inches; sandy loam

#### **Soil Properties and Qualities**

Parent material: Till Slope: 15 to 35 percent Hazard of soil blowing: Slight Surface runoff class: High

Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 8.4 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

Other uses: Pasture

## 305B—Wurtsmith-Meehan sands, 0 to 8 percent slopes

## Setting

Landform: Outwash plains; beach ridges

## **Average Map Unit Composition**

55 percent Wurtsmith and similar soils 40 percent Meehan and similar soils 3 percent Deford and similar soils 2 percent Shelldrake and similar soils

## Description of Major Components

#### Wurtsmith

## **Typical Profile**

Oe—0 to 1 inch; moderately decomposed plant material

E—1 to 4 inches; sand

Bw1,Bw2—4 to 24 inches; sand BC,C—24 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 1 to 8 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)

Ponding: None

#### Meehan

## **Typical Profile**

Oa—0 to 3 inches; moderately decomposed plant material

A-3 to 5 inches; sand

Bw—5 to 28 inches; sand C—28 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy outwash

Slope: 0 to 3 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat poorly drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)

Ponding: None

#### Land Use

Dominant land use: Forestland

## 306C—Deerton-Tokiahok-Jeske complex, 1 to 12 percent slopes, dissected

## Setting

Landform: Benches

## Average Map Unit Composition

35 percent Deerton and similar soils

30 percent Tokiahok and similar soils

20 percent Jeske and similar soils

5 percent Yalmer and similar soils

4 percent Gongeau and similar soils

2 percent Abbaye and similar soils

2 percent Au Train and similar soils

2 percent Jacobsville and similar soils

## Description of Major Components

#### Deerton

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 9 inches; sand Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand

2Cr—25 to 39 inches; weathered bedrock 2R—39 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over sandy residuum

Slope: 1 to 12 percent

Hazard of soil blowing: Severe Surface runoff class: Low

Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 2.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### **Tokiahok**

## **Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

E—2 to 11 inches; loamy fine sand Bhs—11 to 15 inches; loamy fine sand Bs—15 to 24 inches; loamy fine sand 2E/Bx,2B/Ex—24 to 59 inches; sandy loam 2BC,2C—59 to 80 inches; sandy loam

#### **Soil Properties and Qualities**

Parent material: Sandy outwash over loamy till

Slope: 6 to 12 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to a fragipan

Drainage class: Well drained

Available water capacity: About 3.4 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Very slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Jeske

### **Typical Profile**

Oe,Oa—0 to 3 inches; highly decomposed plant material

C1,C2—3 to 21 inches; sand

2Cr—21 to 31 inches; weathered bedrock 2R—31 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits and sandy residuum

Slope: 1 to 10 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Moderate

Depth to restrictive feature: 10 to 23 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Somewhat poorly drained

Available water capacity: About 2.5 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: 0.5 foot to 1.7 feet (May)

Ponding: None

#### Land Use

Dominant land use: Forestland

## 307B—Rubicon sand, 0 to 6 percent slopes, very deep water table

## Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Rubicon and similar soils 3 percent Au Gres and similar soils 2 percent Kinross and similar soils

## Description of Major Components

#### Rubicon

## **Typical Profile**

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 7 inches; sand Bs—7 to 32 inches; sand BC—32 to 40 inches; sand C—40 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 7.9 to 15.0 feet (January, February, June)

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

## 307D—Rubicon sand, 6 to 15 percent slopes, very deep water table

## Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Rubicon and similar soils 3 percent Au Gres and similar soils 2 percent Kinross and similar soils

## **Description of Major Components**

#### Rubicon

## **Typical Profile**

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 7 inches; sand Bs—7 to 32 inches; sand BC—32 to 40 inches; sand C—40 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Outwash Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 8.3 to 15.0 feet (June)

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

## 308B—Rubicon-Sultz complex, 0 to 6 percent slopes

## Setting

Landform: Outwash plains

## Average Map Unit Composition

55 percent Rubicon and similar soils 40 percent Sultz and similar soils 3 percent Croswell and similar soils 2 percent Kinross and similar soils

## Description of Major Components

#### Rubicon

## **Typical Profile**

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 7 inches; sand Bs—7 to 32 inches; sand BC—32 to 40 inches; sand C—40 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Sultz

#### **Typical Profile**

Oi-0 to 1 inch; slightly decomposed plant material

A—1 to 2 inches; fine sand E—2 to 6 inches; fine sand Bs—6 to 18 inches; fine sand C1—18 to 51 inches; fine sand

2C2,2C3—51 to 80 inches; loamy very fine sand

## **Soil Properties and Qualities**

Parent material: Eolian sands over sandy glaciofluvial deposits

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

Other uses: Building site development

# 308D—Rubicon-Sultz complex, 6 to 15 percent slopes Setting

Landform: Outwash plains

## Average Map Unit Composition

55 percent Rubicon and similar soils 40 percent Sultz and similar soils 3 percent Croswell and similar soils 2 percent Kinross and similar soils

## **Description of Major Components**

## Rubicon

## **Typical Profile**

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 7 inches; sand Bs—7 to 32 inches; sand BC—32 to 40 inches; sand C—40 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Sultz

## **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 2 inches; fine sand E—2 to 6 inches; fine sand Bs—6 to 18 inches; fine sand C1—18 to 51 inches; fine sand

2C2,2C3—51 to 80 inches; loamy very fine sand

## **Soil Properties and Qualities**

Parent material: Eolian sands over sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

#### Soil Survey of Alger County, Michigan

Available water capacity: About 4.6 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Moderately slow

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland
Other uses: Building site development

# 309B—Rubicon sand, 0 to 6 percent slopes, deep water table

#### Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Rubicon and similar soils 3 percent Au Gres and similar soils 2 percent Kinross and similar soils

## **Description of Major Components**

#### Rubicon

## **Typical Profile**

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 7 inches; sand Bs—7 to 32 inches; sand BC—32 to 40 inches; sand C—40 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: 4.3 to 15.0 feet (April, May)

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

# 309D—Rubicon sand, 6 to 15 percent slopes, deep water table

## Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Rubicon and similar soils 3 percent Au Gres and similar soils 2 percent Kinross and similar soils

## Description of Major Components

## Rubicon

## **Typical Profile**

Oi-0 to 2 inches; slightly decomposed plant material

E—2 to 7 inches; sand Bs—7 to 32 inches; sand BC—32 to 40 inches; sand C—40 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Available water capacity: About 3.2 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 4.3 to 15.0 feet (April, May)

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

## 310B—Kalkaska sand, 0 to 6 percent slopes, burned

### Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Finch and similar soils

## **Description of Major Components**

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 7.9 to 15.0 feet (January, February, June)

Ponding: None

#### Land Use

Dominant land use: Forestland

## 310D—Kalkaska sand, 6 to 15 percent slopes, burned

#### Setting

Landform: Outwash plains

## **Average Map Unit Composition**

95 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Finch and similar soils

## Description of Major Components

#### Kalkaska

#### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Outwash Slope: 6 to 15 percent

#### Soil Survey of Alger County, Michigan

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

## 310E—Kalkaska sand, 15 to 50 percent slopes, burned

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

95 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Finch and similar soils

## Description of Major Components

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

### Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits; sandy outwash

Slope: 15 to 50 percent Hazard of soil blowing: Severe Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

# 311B—Kalkaska sand, 0 to 6 percent slopes, very deep water table, burned

## Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Finch and similar soils

## **Description of Major Components**

#### Kalkaska

#### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 7.9 to 15.0 feet (January, February, June)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 311D—Kalkaska sand, 6 to 15 percent slopes, very deep water table, burned

## Setting

Landform: Outwash plains

#### Average Map Unit Composition

95 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Finch and similar soils

## **Description of Major Components**

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Outwash Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

## 312B—Islandlake sand, 0 to 6 percent slopes, burned

#### Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

95 percent Islandlake and similar soils 3 percent Halfaday and similar soils 2 percent Kinross and similar soils

## Description of Major Components

#### Islandlake

#### **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

AE—1 to 2 inches; sand E—2 to 8 inches; sand Bhs—8 to 9 inches; sand Bs—9 to 41 inches; sand

E and Bt—41 to 80 inches; sand, loamy sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 6 percent

#### Soil Survey of Alger County, Michigan

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

Other uses: Building site development

## 312D—Islandlake sand, 6 to 15 percent slopes, burned

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

95 percent Islandlake and similar soils 3 percent McMillan and similar soils 2 percent Greylock and similar soils

## Description of Major Components

#### Islandlake

## **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

AE—1 to 2 inches; sand E—2 to 8 inches; sand Bhs—8 to 9 inches; sand Bs—9 to 41 inches; sand

E and Bt-41 to 80 inches; sand, loamy sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

# 313B—Kalkaska sand, 0 to 6 percent slopes, deep water table, burned

#### Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Finch and similar soils

## Description of Major Components

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

# 314B—Blue Lake loamy sand, 0 to 6 percent slopes, very deep water table, burned

#### Setting

Landform: Moraines

## Average Map Unit Composition

95 percent Blue Lake and similar soils 3 percent Halfaday and similar soils 2 percent Kinross and similar soils

#### Description of Major Components

#### Blue Lake

## **Typical Profile**

E—0 to 5 inches; loamy sand Bhs—5 to 7 inches; loamy sand Bs—7 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

### Soil Properties and Qualities

Parent material: Sandy till (supraglacial)

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: 7.9 to 15.0 feet (January, February, June)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 315B—Blue Lake loamy sand, 0 to 6 percent slopes, deep water table, burned

## Setting

Landform: Moraines

## Average Map Unit Composition

95 percent Blue Lake and similar soils 3 percent Halfaday and similar soils 2 percent Kinross and similar soils

## Description of Major Components

## **Blue Lake**

#### **Typical Profile**

E—0 to 5 inches; loamy sand Bhs—5 to 7 inches; loamy sand Bs—7 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: 4.3 to 15.0 feet (April, May)

Ponding: None

## Land Use

Dominant land use: Forestland

# 316B—Blue Lake loamy sand, 0 to 6 percent slopes, burned

#### Setting

Landform: Moraines

## Average Map Unit Composition

95 percent Blue Lake and similar soils 3 percent Halfaday and similar soils 2 percent Kinross and similar soils

#### Description of Major Components

#### Blue Lake

#### **Typical Profile**

E—0 to 5 inches; loamy sand Bhs—5 to 7 inches; loamy sand Bs—7 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 316D—Blue Lake loamy sand, 6 to 15 percent slopes, burned

## Setting

Landform: Moraines

## Average Map Unit Composition

95 percent Blue Lake and similar soils 3 percent Halfaday and similar soils 2 percent Kinross and similar soils

## **Description of Major Components**

#### Blue Lake

## **Typical Profile**

E—0 to 5 inches; loamy sand Bhs—5 to 7 inches; loamy sand Bs—7 to 27 inches; loamy sand E/B,E and B—27 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Sandy till (supraglacial)

Slope: 6 to 15 percent

Hazard of soil blowing: Moderate Surface runoff class: Low

Potential for frost action: Low

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Available water capacity: About 4.9 inches to a depth of 60 inches

Shrink-swell potential: Moderate Permeability: Moderately rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

# 317B—Kalkaska sand, 0 to 6 percent slopes, very deep water table

#### Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Finch and similar soils

## **Description of Major Components**

#### Kalkaska

#### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 7.9 to 15.0 feet (January, February, June)

Ponding: None

#### Land Use

Dominant land use: Forestland

# 317D—Kalkaska sand, 6 to 15 percent slopes, very deep water table

#### Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Finch and similar soils

#### Description of Major Components

### Kalkaska

#### **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Outwash Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

# 318B—Islandlake sand, 0 to 6 percent slopes, very deep water table

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

95 percent Islandlake and similar soils 3 percent Halfaday and similar soils 2 percent Kinross and similar soils

#### **Description of Major Components**

#### Islandlake

#### **Typical Profile**

Oi-0 to 1 inch; slightly decomposed plant material

AE—1 to 2 inches; sand E—2 to 8 inches; sand Bhs—8 to 9 inches; sand Bs—9 to 41 inches; sand

E and Bt-41 to 80 inches; sand, loamy sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 7.9 to 15.0 feet (January, February, June)

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

# 318D—Islandlake sand, 6 to 15 percent slopes, very deep water table

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

95 percent Islandlake and similar soils 3 percent Halfaday and similar soils 2 percent Kinross and similar soils

## **Description of Major Components**

#### Islandlake

### **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

AE—1 to 2 inches; sand E—2 to 8 inches; sand Bhs—8 to 9 inches; sand Bs—9 to 41 inches; sand

E and Bt-41 to 80 inches; sand, loamy sand

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: 7.9 to 15.0 feet (January, February, June)

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

## 319B—Islandlake sand, 0 to 6 percent slopes

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

95 percent Islandlake and similar soils 3 percent Halfaday and similar soils 2 percent Kinross and similar soils

## **Description of Major Components**

#### Islandlake

## **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

AE—1 to 2 inches; sand E—2 to 8 inches; sand Bhs—8 to 9 inches; sand Bs—9 to 41 inches; sand

E and Bt-41 to 80 inches; sand, loamy sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

## 319D—Islandlake sand, 6 to 15 percent slopes

#### Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

95 percent Islandlake and similar soils 3 percent Halfaday and similar soils 2 percent Kinross and similar soils

## **Description of Major Components**

#### Islandlake

#### **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

AE—1 to 2 inches; sand E—2 to 8 inches; sand Bhs—8 to 9 inches; sand

#### Soil Survey of Alger County, Michigan

Bs—9 to 41 inches; sand

E and Bt-41 to 80 inches; sand, loamy sand

## Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

## 319E—Islandlake sand, 15 to 35 percent slopes

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

95 percent Islandlake and similar soils 3 percent Halfaday and similar soils

2 percent Kinross and similar soils

## Description of Major Components

#### Islandlake

## **Typical Profile**

Oi-0 to 1 inch; slightly decomposed plant material

AE—1 to 2 inches; sand E—2 to 8 inches; sand Bhs—8 to 9 inches; sand Bs—9 to 41 inches; sand

E and Bt-41 to 80 inches; sand, loamy sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 15 to 35 percent

Hazard of soil blowing: Moderate Surface runoff class: Low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.1 inches to a depth of 60 inches

#### Soil Survey of Alger County, Michigan

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

Land Use

Dominant land use: Forestland

Other uses: Building site development

## 319F—Islandlake sand, 35 to 60 percent slopes

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

95 percent Islandlake and similar soils 3 percent Kinross and similar soils 2 percent Halfaday and similar soils

## **Description of Major Components**

#### Islandlake

## **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

AE—1 to 2 inches; sand E—2 to 8 inches; sand Bhs—8 to 9 inches; sand Bs—9 to 41 inches; sand

E and Bt-41 to 80 inches; sand, loamy sand

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits

Slope: 35 to 60 percent

Hazard of soil blowing: Moderate Surface runoff class: Low

Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 4.1 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

## Land Use

Dominant land use: Forestland

Other uses: Building site development

# 320B—Kalkaska sand, 0 to 6 percent slopes, deep water table

## Setting

Landform: Outwash plains

## Average Map Unit Composition

95 percent Kalkaska and similar soils 3 percent Kinross and similar soils 2 percent Finch and similar soils

## **Description of Major Components**

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

#### **Soil Properties and Qualities**

Parent material: Outwash Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid

Flooding: None

Depth to seasonal high water table: 4.3 to 15.0 feet (April, May)

Ponding: None

#### Land Use

Dominant land use: Forestland

## 321B—Kalkaska-Deerton sands, 0 to 6 percent slopes

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

50 percent Kalkaska and similar soils 45 percent Deerton and similar soils 3 percent Au Train and similar soils 2 percent Halfaday and similar soils

## **Description of Major Components**

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits; outwash

Slope: 0 to 6 percent

Hazard of soil blowing: Severe Surface runoff class: Negligible Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Rapid Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Deerton

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 9 inches; sand Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand

2Cr—25 to 39 inches; weathered bedrock 2R—39 inches; unweathered bedrock

#### **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over sandy residuum

Slope: 0 to 6 percent

Hazard of soil blowing: Moderate Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 2.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

## 321D—Kalkaska-Deerton sands, 6 to 15 percent slopes

## Setting

Landform: Disintegration moraines; outwash plains

## Average Map Unit Composition

50 percent Kalkaska and similar soils 45 percent Deerton and similar soils 3 percent Au Train and similar soils 2 percent Halfaday and similar soils

## **Description of Major Components**

#### Kalkaska

## **Typical Profile**

A—0 to 2 inches; sand E—2 to 6 inches; sand Bhs—6 to 8 inches; sand Bs—8 to 16 inches; sand BC—16 to 26 inches; sand C—26 to 80 inches; sand

## **Soil Properties and Qualities**

Parent material: Glaciofluvial deposits; outwash

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Available water capacity: About 3.7 inches to a depth of 60 inches

Shrink-swell potential: Low Permeability: Rapid

Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Deerton

#### **Typical Profile**

Oa—0 to 1 inch; highly decomposed plant material

E—1 to 9 inches; sand Bhs—9 to 10 inches; sand Bs—10 to 25 inches; sand

2Cr—25 to 39 inches; weathered bedrock 2R—39 inches; unweathered bedrock

## Soil Survey of Alger County, Michigan

## **Soil Properties and Qualities**

Parent material: Sandy glaciofluvial deposits over sandy residuum

Slope: 6 to 15 percent

Hazard of soil blowing: Severe Surface runoff class: Very low Potential for frost action: Low

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 40 inches to

lithic bedrock

Drainage class: Excessively drained

Available water capacity: About 2.6 inches to a depth of 60 inches

Shrink-swell potential: Low

Permeability: Slow Flooding: None

Depth to seasonal high water table: More than 6.5 feet

Ponding: None

#### Land Use

Dominant land use: Forestland

Other uses: Building site development

## W-Water

• This map unit consists of naturally occurring bodies of water, such as rivers, streams, lakes, reservoirs, and ponds.

## **Use and Management of the Soils**

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

## Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

## **Rating Class Terms**

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes include *not limited, somewhat limited,* and *very limited.* The suitability ratings are expressed as well suited, moderately suited, poorly suited, and unsuited or as good, fair, and poor.

## **Numerical Ratings**

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

## **Crops and Pasture**

Some general information regarding use of the soils for crops and pasture is provided in this section. The estimated yields of the main crops are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information on management practices and other considerations can be obtained from the local office of the Natural Resources Conservation Service, the Soil Conservation District, Michigan State University Extension, or a certified planning professional.

If drainage is planned, care must be taken so that designated wetlands are not affected. Drainage of these areas could violate existing laws and regulations and may jeopardize receipt of USDA benefits. Information about the design of drainage systems and wetland compliance is available in local offices of the Natural Resources Conservation Service.

## Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local

office of the Natural Resources Conservation Service or the Extension Service can provide information about the management and productivity of the soils for those crops.

## **Land Capability Classification**

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961).

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, 2e. The letter e shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of the soils in this survey area is given in the section "Detailed Soil Map Units," in the yields table, and under the heading "Interpretive Groups."

In the "Interpretive Groups" section, the Michigan soil management group is listed. The soils in each map unit are assigned to a group according to the dominant texture, the drainage class, and the major management concerns (Mokma and others, 1978). More detailed information about these groups is available from the local office of the Michigan State University Extension.

#### Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forest land, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

#### **Forestland**

Forestland makes up about 480,000 acres in Alger County, or about 79 percent of the total acreage. Federal and State agencies control about 197,000 acres. Forest industry companies and other corporations own and manage about 191,000 acres of privately owned woodland in the county. Private, nonindustrial woodland accounts for about 92,000 acres in the county.

Forestland is the dominant land use on all but a few soil types. Upland soils dominantly support northern hardwoods, including sugar maple, red maple, basswood, yellow birch, beech, white pine, and hemlock (fig. 6). Black cherry, balsam fir, quaking aspen, and white spruce are minor components in some stands. There are also numerous red pine and jack pine plantations, mainly on Forest Service property, such as the sand plains south of Wetmore. These areas once supported virgin stands of white pine, red pine, or jack pine. After logging, many of these sites were burned and were eventually reforested during the Civilian Conservation Corps (CCC) camp days.

Stands on the wetter mineral soils are predominantly red maple, quaking aspen, paper birch, balsam fir, and hemlock. Wooded swamps support mostly balsam fir, black spruce, northern white-cedar, and tamarack. Red maple, quaking aspen, hemlock, paper birch, and black ash are in some stands. Composition of forestland by forest type in 1980 was 67 percent maple-birch and other upland hardwoods, 11 percent pine, 6 percent spruce-fir, 7 percent white cedar, 4 percent ash and other lowland hardwoods, 4.5 percent aspen-birch, and 0.5 percent nonstocked areas. Composition of forestland by stand size in 1980 was 38 percent sawtimber, 45 percent poletimber, 17 percent sapling and seedling stands, and 0.5 percent nonstocked areas.

Pulpwood and sawlogs used for lumber are the major wood products in the county. Some logs are also harvested for use as veneer, telephone poles, and cabin logs. The majority of the pulpwood harvested is transported outside the county for processing at paper mills. A large sawmill and veneer mill processes most of the saw logs harvested in the county. Also, several small sawmills in the county process



Figure 6.—Northern hardwoods in an area of Shoepac-Trenary silt loams, 1 to 6 percent slopes. Sugar maple is the dominant tree species in areas of these soils.

sawlogs for lumber. Portable sawmills are occasionally used to process logs into lumber at the logging site. Other important woodland products are firewood, poles and posts, and maple syrup. Minor woodland products produced in the county include Christmas trees, pallets, stakes, signs, and wood paneling.

The forest products industry is an important employer in Alger County. The harvest, transportation, and processing of wood are important parts of the economy. Productive soils, a good transportation system, proximity to wood-processing industries, and a large volume of growing stock ensure future economic potential for the forest products industry in Alger County.

## Forestland Management and Productivity

Table 7 can help woodland owners or forest managers plan the use of soils for wood crops. Only those soils suitable for wood crops are listed.

Erosion hazard ratings are based on the soil erosion factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Site preparation ratings are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage (fig. 7). The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Seedling mortality ratings are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a *low*, moderate, or high potential for seedling mortality.

The potential productivity of merchantable or common trees on a soil is expressed as a site index and as a volume number. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Suggested trees to plant are those that are suitable for commercial wood production.



Figure 7.—Windthrow in an area of Munising-Yalmer complex, 1 to 6 percent slopes. Rooting depth is limited by a fragipan in areas of these soils.

## **Forestland Harvesting**

Table 8 provides expanded information concerning the operability of harvesting equipment. The table gives information about operating harvesting or thinning equipment in logging areas and on skid roads, log landings, and haul roads. Limitations are given for the most limiting season and for the preferred operating season. The most limiting season in this survey area generally is spring or late fall. In some areas, however, it is during dry periods in summer, when loose sand can limit trafficability on deep, excessively drained, sandy soils.

The preferred operating season is the period when harvesting or thinning causes the least amount of soil damage. This period generally is when the soil is not too wet or when the ground is frozen or partly frozen or has an adequate snow cover.

For limitations affecting construction of *haul roads*, the ratings are based on slope, flooding, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The soils are described as well suited, moderately suited, and poorly suited. A rating of *well suited* indicates that no significant limitations affect construction activities, *moderately suited* indicates that one or more limitations can cause some difficulty in construction, and *poorly suited* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of suitability for *log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *logging areas and skid roads* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

## **Forest Habitat Types**

The information in this section is derived from the field guide to the habitat classification system for the Upper Peninsula of Michigan and northeast Wisconsin (Coffman and others, 1980). The system of habitat classification used in the guide is based on the concept that plants occur in predictable patterns or communities and that these communities reflect differences in site characteristics.

Besides identifying the various habitat types by means of vegetative keys, the guide also provides information about the different possible successional stages for most of the habitat types. The successional stages depend largely on how the forest has been disturbed. They include the succession after logging in the original climax stands, the succession after logging in second-growth stands, and the succession in stands that have been both logged and burned.

The guide gives the suggested forest management for each of the successional stages. This management includes methods of thinning and harvest, site preparation, and measures that improve regeneration of the stands. The potential productivity in terms of a site index and mean annual volume in cubic feet per acre per year is given for most of the habitat types. The development of the descriptive or interpretive information for some of the habitat types, however, is based on limited data; therefore, the information should be used with caution.

Habitat types have been determined for each map unit in the survey area, with the exception of miscellaneous areas. The primary habitat type is the one that is most common on the map unit. The secondary habitat type is less common. Habitat types are listed under the heading "Interpretive Groups." The following paragraphs describe the habitat types. They provide information about the potential climax species, some of the common understory species, and, if known, the potential productivity of the habitat type.

AOC—Acer-Osmorhiza-Caulophyllum habitat type. This habitat type has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock and American basswood. American elm, white ash, and eastern hophornbeam are in some areas. The dominant ground flora includes spinulose shield fern, blue cohosh, sweet cicely, ladyfern, smooth yellow violet, Canada white violet, and downy yellow violet. The potential productivity for northern hardwoods is high.

**AQV—Acer-Quercus-Vaccinium habitat type.** This habitat type has a potential climax overstory dominated by red maple and red oak. Other species include eastern

hemlock, white pine, balsam fir, and white spruce. The dominant ground flora includes lowbush blueberry, Canada blueberry, brackenfern, wintergreen, bigleaf aster, and hazelnut. The potential productivity is moderately low for northern hardwoods, moderate for aspen, and moderately high for red pine and jack pine.

ATD—Acer-Tsuga-Dryopteris habitat type. This habitat type has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock and American basswood. Yellow birch, red maple, American beech, and American elm are in some areas. The dominant ground flora includes spinulose shield fern, rosy twisted stalk, hairy Solomon's seal, red elderberry, and wild lily-of-the-valley. The potential productivity is moderately high for northern hardwoods and high for aspen. The potential productivity for red pine plantations is high if plant competition is controlled.

ATD-CI—Acer-Tsuga-Dryopteris habitat type, Circaea-Impatiens phase. This habitat type is commonly located within upland drainage systems. It has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock and American basswood. Yellow birch, red maple, American beech, and American elm are in some areas. The dominant ground flora includes spinulose shield fern, rosy twisted stalk, hairy Solomon's seal, red elderberry, wild lily-of-the-valley, jewelweed, and dwarf enchanter's nightshade. The potential productivity is moderately high for northern hardwoods and high for aspen. The potential productivity for red pine plantations is high if plant competition is controlled.

ATD-D—Acer-Tsuga-Dryopteris habitat type, Dryopteris phase. This habitat type has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock and American basswood. Yellow birch, red maple, American beech, and American elm are in some areas. The dominant ground flora includes spinulose shield fern, rosy twisted stalk, hairy Solomon's seal, red elderberry, and wild lily-of-the-valley. The potential productivity is moderately high for northern hardwoods and high for aspen. The potential productivity for red pine plantations is high if plant competition is controlled.

AVO—Acer-Viola-Osmorhiza habitat type. This habitat type has a potential climax overstory dominated by sugar maple. Other species include American basswood, white ash, yellow birch, eastern hophornbeam, eastern hemlock, and American elm. The dominant ground flora includes Canada white violet, downy yellow violet, smooth yellow violet, sweet cicely, spinulose shield fern, ladyfern, hairy Solomon's seal, and rosy twisted stalk. The potential productivity is high for northern hardwoods and aspen. It also is high for red pine plantations if plant competition is controlled.

AVO-A—Acer-Viola-Osmorhiza habitat type, Adiantum phase. This habitat type has a potential climax overstory dominated by sugar maple. Other species include American basswood, white ash, yellow birch, eastern hophornbeam, eastern hemlock, and American elm. The dominant ground flora includes Canada white violet, sweet cicely, spinulose woodfern, wild leek, maidenhair fern, ladyfern, hairy Solomon's seal, and rosy twisted stalk. The potential productivity is high for northern hardwoods and aspen. It also is high for red pine plantations if plant competition is controlled.

AVO-CI—Acer-Viola-Osmorhiza habitat type, Circaea-Impatiens phase. This habitat type commonly occurs within upland drainage systems. It has a potential climax overstory dominated by sugar maple. Other species include American basswood, white ash, yellow birch, hophornbeam, eastern hemlock, and American elm. The dominant ground flora includes Canada white violet, downy yellow violet, smooth yellow violet, sweet cicely, spinulose shield fern, ladyfern, hairy Solomon's seal, rosy twisted stalk, jewelweed, and dwarf enchanter's nightshade. The potential productivity is high for northern hardwoods and aspen. It also is high for red pine plantations if plant competition is controlled.

- **FI—Fraxinus-Impatiens habitat type.** This habitat type has a potential climax overstory dominated by white ash and red maple. Other species include sugar maple, black ash, and balsam fir. The dominant ground flora includes jewelweed, sedges, dwarf enchanter's nightshade, spinulose shield fern, ladyfern, red elderberry, and field mint. The potential productivity for northern hardwoods is moderate.
- **FMC—Fraxinus-Mentha-Carex habitat type.** This habitat type has a potential climax overstory dominated by black ash and American elm. Other species include red maple and balsam fir. The dominant ground flora includes sedges, field mint, speckled alder, and jewelweed.
- **FMC-C—Fraxinus-Mentha-Carex habitat type, Carex phase.** This habitat type has a potential climax overstory dominated by black ash and American elm. Other species include balsam fir and red maple. The dominant ground flora includes sedges, field mint, speckled alder, and jewelweed. This phase is mostly limited to active flood plains where trees generally do not grow.
- **PCS—Picea-Chamaedaphne-Sphagnum habitat type.** This habitat type has a potential climax overstory dominated by black spruce. Other species include tamarack and northern white-cedar. The dominant ground flora includes leatherleaf, bog rosemary, pale laurel, sphagnum mosses, Labrador tea, sedges, and Canada blueberry.
- **PO—Picea-Osmunda habitat type.** This habitat type has a potential climax overstory dominated by black spruce and northern white-cedar. Other species include eastern hemlock and white pine. The dominant ground flora includes cinnamon fern, sphagnum mosses, sedges, marsh marigold, and goldthread.
- **PVC—Pinus-Vaccinium-Carex habitat type.** This habitat type has a potential climax overstory dominated by jack pine. Other species include red pine, black spruce, and white pine. The dominant ground flora consists of sedge, low sweet blueberry, brackenfern, trailing arbutus, reindeer moss, hairgrass, and wintergreen.
- **PVD—Pinus-Vaccinium-Deschampsia habitat type.** This habitat type has a potential climax overstory dominated by jack pine. Other species include red pine and white pine. The dominant ground flora consists of hairgrass, sedge, reindeer moss, sweetfern, lowbush blueberry, brackenfern, and trailing arbutus. The potential productivity is moderately low for red pine and moderate for jack pine.
- QAE—Quercus-Acer-Epigaea habitat type. This habitat type has a potential climax overstory dominated by red oak and red maple. Other species include white spruce and white pine. The dominant ground flora consists of brackenfern, trailing arbutus, wintergreen, lowbush blueberry, mosses, and Canada blueberry. The potential productivity is moderately low for aspen and moderate for red pine and jack pine.
- **TM—Tsuga-Maianthemum habitat type.** This habitat type has a potential climax overstory dominated by eastern hemlock, sugar maple, and red maple. Other species include yellow birch, white spruce, balsam fir, eastern white pine, northern red oak, northern white-cedar, and American basswood. The dominant ground flora includes wild lily-of-the-valley, brackenfern, sedges, American starflower, and wild sarsaparilla. The potential productivity is moderate for northern hardwoods, moderately high for aspen, and high for red pine and jack pine.
- **TMC—Tsuga-Maianthemum-Coptis habitat type.** This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Yellow birch is common. Other species include balsam fir, white spruce, and northern white-cedar. The dominant ground flora includes wild lily-of-the-valley, goldthread, yellow beadlily, bunchberry, American starflower, wood sorrel, and spinulose shield fern. The potential productivity is moderate for northern hardwoods and aspen.
- **TMC-D—Tsuga-Maianthemum-Coptis habitat type, Dryopteris phase.** This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Sugar maple and yellow birch are common. Other species include balsam fir,

white spruce, and northern white-cedar. The dominant ground flora includes wild lily-of-the-valley, goldthread, yellow beadlily, bunchberry, American starflower, spinulose shield fern, long beech fern, oak fern, wood sorrel, and hairy Solomon's seal. The potential productivity is moderate for northern hardwoods and aspen.

TMC-V—Tsuga-Maianthemum-Coptis habitat type, Vaccinium phase. This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Yellow birch is common. Other species include balsam fir, white spruce, and northern white-cedar. The dominant ground flora includes wild lily-of-the-valley, goldthread, yellow beadlily, bunchberry, American starflower, Canada blueberry, lowbush blueberry, wood sorrel, and spinulose shield fern. The potential productivity is moderate for northern hardwoods and aspen.

**TMV—Tsuga-Maianthemum-Vaccinium habitat type.** This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Other species include sugar maple, eastern white pine, balsam fir, white spruce, and northern red oak. The dominant ground flora includes Canada blueberry, wild sarsaparilla, brackenfern, wild lily-of-the-valley, lowbush blueberry, yellow beadlily, and wood betony. The potential productivity is moderate for northern hardwoods, moderately high for aspen, and high for red pine and jack pine.

**TTM—Tsuga-Thuja-Mitella habitat type.** This habitat type has a potential climax overstory dominated by northern white-cedar and eastern hemlock. Other species include balsam fir and red maple. The dominant ground flora includes naked miterwort, sedges, wild lily-of-the-valley, American starflower, twinflower, fringed polygala, sphagnum mosses, and bunchberry.

TTS—Tsuga-Thuja-Sphagnum habitat type. This habitat type has a potential climax overstory dominated by eastern hemlock and northern white-cedar. Other species include balsam fir, black spruce, and red maple. The dominant ground flora includes sphagnum mosses, goldthread, bunchberry, sedges, wild lily-of-the-valley, American starflower, horsetails, and wood sorrel.

## **Forestland Plant Communities**

Table 9 lists the habitat type and the characteristic vegetation typically associated with selected soils in the survey area. The common plant names are those on a national list of plant names (USDA/NRCS, PLANTS database).

## Recreation

The soils of the survey area are rated in tables 10a and 10b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 10a and 10b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after

vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

#### Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 11, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs. *Grain and seed crops* are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, timothy, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bunchberry dogwood, shield fern, goldenrod, lambsquarters, and dandelion.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and

wetness. Examples of these plants are oak, aspen, cherry, maple, beech, apple, hawthorn, dogwood, beaked hazelnut, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, marsh marigold, cinnamon fern, jewelweed, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs. Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include sharp-tailed grouse, bobolink, field sparrow, kestrel, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

# **Engineering**

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

#### **Building Site Development**

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 12a and 12b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and shallow excavations.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and

on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

#### Sanitary Facilities

Tables 13a and 13b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special

design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A trench sanitary landfill is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the

movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an area sanitary landfill, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

#### **Construction Materials**

Tables 14a and 14b give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 14a, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not

evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good*, *fair*, or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

In table 14b, the soils are rated *good*, *fair*, or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by

slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

#### **Water Management**

Tables 15a and 15b give information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; aquifer-fed excavated ponds; grassed waterways; and drainage. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

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Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, a cemented pan, or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

# Soil Properties

Data relating to soil properties are collected during the course of the soil survey. Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

## **Engineering Index Properties**

Table 16 gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

*Depth* to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

*Classification* of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

# **Physical Properties of the Soils**

Table 17 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at ¹/₃- or ¹/₁₀-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (Ksat) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water

per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at <sup>1</sup>/<sub>3</sub>- or <sup>1</sup>/<sub>10</sub>-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Erosion factors are shown in the table as the K factor and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor Kf* indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

*Erosion factor T* is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook," which is available in local offices of the Natural Resources Conservation Service or on the Internet (http://soils.usda.gov/technical/).

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

# **Chemical Properties of the Soils**

Table 18 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory

analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

#### **Soil Features**

Table 19 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A restrictive layer is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, ortstein, dense layers, and frozen layers. The table indicates the thickness and hardness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of

uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

#### **Water Features**

Soil moisture status is an estimate of the fluctuating water content in a soil. It greatly influences vegetation type and plant growth; physical properties of soils, such as permeability, workability, strength, linear extensibility, and frost action; and chemical interactions and transport. Many other properties, qualities, and interpretations also are affected. Soil moisture status is important in the classification of soils, wetland, and habitat.

Table 20 gives estimates of soil moisture for each component of a map unit at various depths for every month of the year. The depths displayed are representative values that are indicative of conditions that occur most commonly. *Dry* indicates a moisture condition under which most plants (especially crops) cannot extract water for growth. *Moist* indicates a moisture condition under which soil water is most readily available for plant growth. *Wet* indicates a condition under which water will stand in an unlined hole or at least a condition under which the soil is too wet for the growth of most agricultural species. A moisture status of 4.0–6.7 (wet) indicates that most of the time the component is saturated at some depth between 4.0 feet and 6.7 feet during the month designated. In some years the soil may be saturated at a depth of less than 4.0 feet or more than 6.7 feet; however, field observations indicate that the soil will be saturated between these depths in most years. In the summer, the soil may show the effects of drying plus intermittent rains that result in a moist or wet layer over a dry layer that gets moist or wet again.

Table 21 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 21 indicates, by month, depth to the top (upper limit) and base (lower limit) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Table 21 also shows the *kind of water table*, that is, apparent or perched. An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and frequency are estimated. Duration is expressed as extremely brief if 0.1 hour to 4 hours, very brief if 4 hours to 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. None means that flooding is not probable; very rare that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); rare that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); occasional that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); frequent that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in all months in any year); and very frequent that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

#### Soil Survey of Alger County, Michigan

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

# Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 22 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Glossudalfs (*Gloss*, meaning tongue, plus *udalfs*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. An example is Haplic Glossudalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, mixed, semiactive, frigid Haplic Glossudalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

# Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in

the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. The official pedon description and the range of important characteristics are available online at http://soils.usda.gov.

## Abbaye Series

The Abbaye series consists of moderately deep, moderately well drained soils on bedrock-controlled ground moraines. These soils formed in loamy till. Permeability is moderate. Slopes range from 1 to 12 percent.

Typical pedon of Abbaye sandy loam; 1,200 feet south and 2,550 feet west of the northeast corner of sec. 33, T. 52 N., R. 33 W., Baraga Township, Baraga County, Michigan:

- Oi—0 to 2 inches; recent hardwood litter.
- A—2 to 4 inches; dark reddish brown (5YR 2/2) sandy loam, gray (5YR 5/1) dry; weak fine granular structure; friable; many roots; about 5 percent gravel; very strongly acid; abrupt smooth boundary.
- E—4 to 13 inches; brown (7.5YR 5/2) loamy sand; weak medium subangular blocky structure; friable; many roots; about 5 percent gravel; strongly acid; clear irregular boundary.
- Bs1—13 to 18 inches; dark reddish brown (5YR 3/4) sandy loam; moderate medium subangular blocky structure; friable; few roots; few fragments of strongly cemented ortstein; about 5 percent gravel; strongly acid; clear irregular boundary.
- Bs2—18 to 25 inches; reddish brown (5YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; few roots; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation below a depth of 20 inches; about 5 percent gravel; moderately acid; clear wavy boundary.
- B/E´—25 to 32 inches; dark reddish brown (2.5YR 3/4) sandy loam (Bt); occupies about 85 percent of the horizon; surrounded by reddish brown (5YR 5/3) loamy sand (E´); weak coarse subangular blocky structure; firm; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation; about 5 percent gravel; moderately acid; abrupt smooth boundary.
- 2R—32 inches; sandstone bedrock.

#### Au Gres Series

The Au Gres series consists of very deep, somewhat poorly drained soils on ground moraines, lake plains, and outwash plains. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 3 percent.

Typical pedon of Au Gres sand, in an area of Au Gres-Dawson-Rubicon complex, 0 to 35 percent slopes; 2,000 feet east and 400 feet south of the northwest corner of sec. 28, T. 49 N., R. 8 W., McMillan Township, Luce County, Michigan; USGS Betsy Lake SW, Michigan, topographic quadrangle:

- Oe—0 to 2 inches; partially decomposed forest litter; massive; friable; many fine to coarse roots; extremely acid; abrupt wavy boundary.
- E—2 to 7 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/2) dry; weak medium subangular blocky structure; friable; common fine to coarse roots; extremely acid; abrupt wavy boundary.

- Bs1—7 to 12 inches; 90 percent strong brown (7.5YR 4/6) and 10 percent dark brown (7.5YR 3/4) sand; weak medium subangular blocky structure; friable; many fine to coarse roots; ortstein occupies 10 percent of the horizon and is moderately cemented; ortstein occurs as dark brown (7.5YR 3/4) tongues 2 to 4 inches wide extending to a depth of 15 inches; few fine faint strong brown (7.5YR 5/6) masses of iron accumulation; extremely acid; clear wavy boundary.
- Bs2—12 to 17 inches; strong brown (7.5YR 5/6) sand; weak medium subangular blocky structure; friable; few fine to coarse roots; ortstein occupies 25 percent of the horizon and is moderately cemented; ortstein occurs as strong brown (7.5YR 5/6) and dark brown (7.5YR 3/4) tongues 1 to 4 inches wide extending to a depth of 24 inches; common fine distinct yellowish red (5YR 5/8) masses of iron accumulation; very strongly acid; clear wavy boundary.
- BC—17 to 28 inches; brown (7.5YR 5/4) sand; weak medium subangular blocky structure; friable; common fine faint strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid; clear wavy boundary.
- C1—28 to 52 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary.
- C2—52 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; very strongly acid.

#### Au Train Series

The Au Train series consists of shallow, moderately well drained soils on bedrock-controlled moraines. These soils formed in sandy glaciofluvial deposits and sandy residuum. Permeability is rapid. Slopes range from 1 to 18 percent.

Typical pedon of Au Train coarse sand, in an area of Jeske-Au Train-Gongeau complex, 0 to 8 percent slopes; about 1,000 feet south and 2,600 feet west of the northeast corner of sec. 27, T. 47 N., R. 20 W., Onota Township, Alger County, Michigan; USGS Au Train, Michigan, topographic quadrangle; lat. 46 degrees 26 minutes 47.24 seconds N. and long. 86 degrees 47 minutes 25.15 seconds W., NAD 27:

- Oa—0 to 2 inches; highly decomposed leaf litter; weak fine granular structure; very friable; many fine and medium and few very coarse roots; extremely acid; abrupt wavy boundary.
- E—2 to 9 inches; reddish gray (5YR 5/2) coarse sand, light gray (5YR 7/1) dry; moderate medium subangular blocky structure; friable; few fine to coarse roots; extremely acid; abrupt wavy boundary.
- Bhs—9 to 14 inches; dark reddish brown (5YR 2.5/2) coarse sand; weak fine subangular blocky structure; friable; about 20 percent of the horizon is strongly cemented, dark reddish brown (5YR 2.5/2) ortstein that occurs intermittently on a horizontal plane; few fine to coarse roots; extremely acid; clear wavy boundary.
- Cr—14 to 32 inches; reddish brown (5YR 5/3), highly weathered sandstone; extremely acid; gradual smooth boundary.
- R—32 inches; brown (10YR 4/3) sandstone bedrock.

#### Blue Lake Series

The Blue Lake series consists of very deep, well drained soils on outwash plains and disintegration moraines. These soils formed in sandy till. Permeability is rapid. Slopes range from 1 to 70 percent.

Typical pedon of Blue Lake loamy sand (fig. 8), in an area of Kalkaska-Blue Lake complex, 1 to 6 percent slopes; 2,000 feet east and 300 feet south of the northwest corner of sec. 8, T. 45 N., R. 20 W., Au Train Township, Alger County, Michigan; USGS Forest Lake, Michigan, topographic quadrangle; lat. 46 degrees 18 minutes 57 seconds N. and long. 86 degrees 50 minutes 32 seconds W., NAD 27:

Oa—0 to 2 inches; highly decomposed forest litter; abrupt smooth boundary.

- E—2 to 7 inches; brown (7.5YR 5/3) loamy sand, pinkish gray (7.5YR 7/2) dry; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 4 percent gravel and 3 percent cobbles; very strongly acid; abrupt wavy boundary.
- Bhs—7 to 9 inches; very dark brown (7.5YR 2.5/2) loamy sand; weak medium subangular blocky structure; friable; dark reddish brown (5YR 3/2) moderately cemented ortstein occupies 20 percent (8 of 40 inches) of the horizon; ortstein extends into the Bs horizon as discontinuous tongues; many very fine to course roots; about 4 percent gravel and 3 percent cobbles; very strongly acid; clear wavy boundary.
- Bs—9 to 27 inches; brown (7.5YR 4/4) loamy sand; weak medium subangular blocky structure; friable; common very fine to coarse roots; about 4 percent gravel and 3 percent cobbles; very strongly acid; clear wavy boundary.
- E/B—27 to 47 inches; reddish brown (5YR 5/4) loamy fine sand, pinkish gray (5YR 7/2) dry (E); occupies about 60 percent of the horizon; surrounding isolated remnants of red (2.5YR 4/6) fine sandy loam (Bt); moderate thick platy structure; firm; few very fine and fine roots; few faint reddish brown (2.5YR 4/4) clay bridges between sand grains; few faint reddish brown (2.5YR 4/4) clay films on ped



Figure 8.—Profile of Blue Lake loamy sand.

Lamellae occur at a depth of 32 to 50 inches.

- surfaces; common fine vesicular pores; few very fine and fine roots; about 5 percent gravel; very strongly acid; gradual wavy boundary.
- E´ and Bt—47 to 80 inches; brown (7.5YR 5/4) sand, pinkish gray (7.5YR 7/2) dry (E´); weak fine subangular blocky structure; very friable; lamellae of red (2.5YR 4/6) loamy sand (Bt); weak thick platy structure; friable; lamellae are ¹/8 to ¹/2 inch thick; total accumulation is more than 6 inches; few very fine and fine roots; about 3 percent gravel; strongly acid.

#### **Buckroe Series**

The Buckroe series consists of shallow, excessively drained soils on bedrock benches. These soils formed in sandy and channery glaciofluvial deposits overlying sandstone bedrock. Permeability is very rapid. Slopes range from 0 to 70 percent.

Typical pedon of Buckroe very channery loamy sand, in an area of Buckroe-Rock outcrop complex, 6 to 25 percent slopes, very bouldery; 600 feet north and 2,300 feet east of the southwest corner of sec. 20, T. 52 N., R. 28 W., Powell Township, Marquette County, Michigan; USGS Howe Lake, Michigan, topographic quadrangle; lat. 46 degrees 52 minutes 56 seconds N. and long. 87 degrees 54 minutes 13 seconds W., NAD 27:

- Oa—0 to 2 inches; highly decomposed forest litter; weak fine granular structure; very friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.
- Bw1—2 to 4 inches; reddish brown (5YR 4/3) very channery loamy sand, yellowish red (5YR 6/2) dry; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 40 percent channers and 3 percent flagstones; extremely acid; clear wavy boundary.
- Bw2—4 to 15 inches; reddish brown (5YR 4/4) very channery sand; single grain; loose; many very fine to coarse roots; about 45 percent channers and 10 percent flagstones; very strongly acid; abrupt wavy boundary.
- 2R—15 inches; dusky red (2.5YR 3/2) sandstone bedrock.

#### **Burt Series**

The Burt series consists of shallow, poorly drained soils in depressions and drainageways on bedrock-controlled moraines. These soils formed in sandy glaciofluvial deposits overlying sandstone bedrock. Permeability is rapid. Slopes range from 0 to 2 percent.

Typical pedon of Burt mucky sand, in an area of Burt Variant-Burt complex, 0 to 2 percent slopes; 700 feet south and 2,640 feet east of the northwest corner of sec. 27, T. 52 N., R. 33 W., Baraga Township, Baraga County, Michigan; USGS Portage Entry, Michigan, topographic quadrangle:

- Oa—0 to 1 inch; well decomposed forest litter; weak medium granular structure; friable; many fine roots; 5 percent gravel; strongly acid; abrupt smooth boundary.
- A—1 to 5 inches; black (10YR 2/1) mucky sand, gray (10YR 5/1) dry; weak medium granular structure; very friable; many fine roots; about 5 percent gravel; moderately acid; abrupt smooth boundary.
- Cg—5 to 13 inches; gray (5Y 5/1) sand; single grain; loose; few fine roots; about 5 percent gravel; moderately acid; clear smooth boundary.
- C—13 to 19 inches; brown (10YR 5/3) sand; single grain; loose; 5 percent gravel; slightly acid; abrupt clear boundary.
- 2R—19 inches; brown (10YR 5/3) sandstone bedrock.

#### Carbondale Series

The Carbondale series consists of very deep, very poorly drained soils on outwash plains, lake plains, ground moraines, and disintegration moraines. These soils formed in woody and herbaceous material more than 51 inches thick. Permeability is moderately slow to moderately rapid. Slopes range from 0 to 2 percent.

Typical pedon of Carbondale muck, in an area of Carbondale, Lupton, and Tawas soils, 2,900 feet south and 800 feet west of the northeast corner of sec. 9, T. 43 N., R. 26 W., Wells Township, Marquette County, Michigan; USGS Northland NE, Michigan, topographic quadrangle; lat. 46 degrees 08 minutes 10 seconds N. and long. 87 degrees 33 minutes 25 seconds W., NAD 27:

- Oa1—0 to 6 inches; muck, black (10YR 2/1) broken face and rubbed; about 10 percent fiber, 2 percent rubbed; weak fine granular structure; many very fine to coarse roots; slightly acid; clear wavy boundary.
- Oa2—6 to 23 inches; muck, black (N 2.5/) broken face and rubbed; about 10 percent fiber, 2 percent rubbed; weak medium subangular blocky structure; slightly acid; clear smooth boundary.
- Oa3—23 to 38 inches; muck, black (N 2.5/) broken face and rubbed; about 35 percent fiber, 10 percent rubbed; weak medium subangular blocky structure; slightly acid; clear smooth boundary.
- Oe1—38 to 68 inches; mucky peat, black (10YR 2/1) broken face and rubbed; about 90 percent fiber, 33 percent rubbed; massive; neutral; clear smooth boundary.
- Oe2—68 to 80 inches; mucky peat, black (10YR 2/1) broken face and rubbed; about 90 percent fiber, 20 percent rubbed; massive; neutral.

#### Cathro Series

The Cathro series consists of very deep, very poorly drained soils in depressions and drainageways on ground moraines and bedrock-controlled moraines. These soils formed in woody and herbaceous deposits over loamy glacial deposits. Permeability is moderately slow to moderately rapid in the organic part of the profile and moderate or moderately slow in the loamy part. Slopes are 0 to 1 percent.

Typical pedon of Cathro muck, in an area of Cathro-Ensley mucks; 1,500 feet west and 20 feet south of the northeast corner of sec. 21, T. 22 N., R. 22 W., Limestone Township, Alger County, Michigan; USGS Diffin, Michigan, topographic quadrangle; lat. 46 degrees 12 minutes 08.15 seconds N. and long. 87 degrees 03 minutes 35.45 seconds W., NAD 27:

- Oa1—0 to 8 inches; very dark gray (10YR 3/1) muck; about 30 percent fiber, 5 percent rubbed; weak medium subangular blocky structure; very friable; many very fine to coarse roots; moderately acid; clear wavy boundary.
- Oa2—8 to 16 inches; very dark brown (10YR 2/2) muck; about 50 percent fiber, 10 percent rubbed; weak medium subangular blocky structure; very friable; moderately acid; clear wavy boundary.
- Oa3—16 to 34 inches; black (10YR 2/1) muck; about 15 percent fiber, 2 percent rubbed; 5 percent mineral content; massive; friable; moderately acid; abrupt smooth boundary.
- C1—34 to 46 inches; reddish brown (2.5YR 5/3) gravelly fine sandy loam; massive; friable; about 12 percent gravel and 6 percent cobbles; slightly acid; gradual wavy boundary.
- C2—46 to 80 inches; reddish brown (5YR 5/4) gravelly fine sandy loam; massive; friable; about 12 percent gravel and 6 percent cobbles; slightly effervescent; slightly alkaline.

#### Charlevoix Series

The Charlevoix series consists of very deep, somewhat poorly drained soils on ground moraines. These soils formed in a silty or loamy eolian mantle over loamy till. Permeability is moderate. Slopes range from 0 to 3 percent.

Typical pedon of Charlevoix silt loam, in an area of Charlevoix-Ensley complex, 0 to 3 percent slopes; about 1,300 feet east and 300 feet south of the northwest corner of sec. 20, T. 44 N., R. 22 W., Limestone Township, Alger County, Michigan; USGS Diffin, Michigan, topographic quadrangle; lat. 46 degrees 12 minutes 08.52 seconds N. and long. 87 degrees 05 minutes 39.43 seconds W., NAD 27:

- Oa—0 to 2 inches; partially decomposed forest litter; moderate fine granular structure; friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.
- E—2 to 5 inches; dark reddish gray (5YR 4/2) silt loam, light gray (5YR 7/1) dry; weak fine subangular blocky structure; friable; many very fine to coarse roots; common fine vesicular pores; about 2 percent gravel and 1 percent cobbles; strongly acid; abrupt smooth boundary.
- Bhs—5 to 7 inches; dark reddish brown (5YR 3/2) silt loam; weak fine subangular blocky structure; friable; many very fine to coarse roots; common fine vesicular pores; about 2 percent gravel and 1 percent cobbles; very strongly acid; abrupt broken boundary.
- Bs—7 to 12 inches; dark reddish brown (5YR 3/4) silt loam; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation on faces of peds; very dark gray (5YR 3/1), firm organic accumulations on horizontal surfaces of peds; weak fine subangular blocky structure; friable; many very fine to coarse roots; common fine vesicular pores; about 2 percent gravel and 1 percent cobbles; strongly acid; clear broken boundary.
- 2E/B—12 to 16 inches; brown (7.5YR 5/4) loamy fine sand, pink (7.5YR 7/3) dry (E); occupies about 60 percent of the horizon; occurs as tongues extending into or completely surrounding isolated remnants of reddish brown (5YR 4/4) fine sandy loam (Bt); few distinct dark reddish brown (5YR 3/4) clay films on faces of peds and in root channels; weak thick platy structure parting to weak moderate subangular blocky; firm; few very fine and fine roots; common fine vesicular pores; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; 6 percent gravel and 4 percent cobbles; neutral; clear wavy boundary.
- 2B/E—16 to 27 inches; reddish brown (5YR 4/4) cobbly fine sandy loam (Bt); few distinct dark reddish brown (5YR 3/4) clay films on faces of peds and in root channels; occupies about 70 percent of the horizon; penetrated by tongues of brown (7.5YR 5/4) cobbly loamy fine sand (E); common fine distinct strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky structure; friable; common fine vesicular pores; few distinct clay films on faces of peds and in root channels; 12 percent gravel and 8 percent cobbles; moderately alkaline; gradual wavy boundary.
- 2C—27 to 80 inches; reddish brown (5YR 5/4) cobbly fine sandy loam; common fine distinct strong brown (7.5YR 5/6) mottles; massive with weak thick platiness inherent from deposition; friable; 12 percent gravel and 8 percent cobbles; slightly effervescent; moderately alkaline.

#### Chatham Series

The Chatham series consists of very deep, well drained soils on ground moraines and in glacial drainage channels. These soils formed in gravelly and flaggy, loamy glaciofluvial deposits. Permeability is moderate. Slopes range from 1 to 35 percent.

Typical pedon of Chatham fine sandy loam, 1 to 6 percent slopes, stony; 2,000 feet west and 350 feet north of the southeast corner of sec. 10, T. 46 N., R. 22 W., Onota Township, Alger County, Michigan; USGS Sand River, Michigan, topographic quadrangle; lat. 46 degrees 23 minutes 31 seconds N. and long. 87 degrees 02 minutes 27 seconds W., NAD 27:

- Oa—0 to 1 inch; highly decomposed forest litter.
- A—1 to 6 inches; black (7.5YR 2.5/1) fine sandy loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; many very fine to coarse roots; about 5 percent gravel, 5 percent cobbles, and 1 percent stones; strongly acid; clear wavy boundary.
- Bs1—6 to 20 inches; dark brown (7.5YR 3/4) gravelly fine sandy loam; moderate fine subangular blocky structure; friable; many very fine to medium roots and common coarse roots; common fine prominent very dark grayish brown (10YR 3/2) worm casts; about 16 percent gravel, 5 percent cobbles, and 1 percent stones; strongly acid; gradual wavy boundary.
- 2Bs2—20 to 39 inches; brown (7.5YR 4/4) very flaggy fine sandy loam; weak coarse subangular blocky structure; friable; common very fine and fine roots and few medium and coarse roots; common fine prominent very dark grayish brown (10YR 3/2) worm casts; common saprolite fragments composed of sandstone and glauconitic limestone; about 17 percent gravel, 10 percent cobbles, and 15 percent flagstones; moderately acid; gradual wavy boundary.
- 2C—39 to 80 inches; brown (10YR 4/3) extremely flaggy fine sandy loam; massive; friable; about 30 percent flagstones, 25 percent cobbles, and 26 percent gravel; slightly effervescent; moderately alkaline.

## **Chippeny Series**

The Chippeny series consists of moderately deep, very poorly drained soils in depressions and drainageways on ground moraines and in glacial drainage channels. These soils formed in organic deposits over loamy material overlying limestone, dolomite, or dolomitic sandstone bedrock. Permeability is moderately slow to moderately rapid in the organic part of the profile and moderate or moderately slow in the mineral part. Slopes are 0 to 1 percent.

Typical pedon of Chippeny muck; in the southwest corner of sec. 3, T. 41 N., R. 21 W., Masonville Township, Delta County, Michigan; USGS Rapid River, Michigan, topographic quadrangle:

- Oa1—0 to 3 inches; muck, black (5YR 2.5/1) broken face and rubbed; about 25 percent fiber, less than 5 percent rubbed; weak fine granular structure; primarily herbaceous fiber; slightly alkaline; clear smooth boundary.
- Oa2—3 to 6 inches; muck, black (5YR 2/1) broken face, dark reddish brown (5YR 2.5/2) rubbed; about 50 percent fiber, less than 5 percent rubbed; weak medium granular structure; slightly alkaline; clear smooth boundary.
- Oa3—6 to 20 inches; muck, very dark gray (5YR 3/1) broken face and rubbed; about 17 percent fiber, less than 5 percent rubbed; massive; primarily herbaceous fiber; nonsticky; about 40 percent ash content; slightly alkaline; gradual smooth boundary.
- Cg—20 to 28 inches; dark grayish brown (2.5Y 4/2) silty clay loam; massive; sticky; slightly alkaline; abrupt smooth boundary.
- 2R—28 inches; limestone bedrock.

## **Chocolay Series**

The Chocolay series consists of moderately deep, moderately well drained soils on bedrock-controlled moraines. These soils formed in loamy till overlying sandstone bedrock. Permeability is moderate. Slopes range from 1 to 6 percent.

Typical pedon of Chocolay very stony fine sandy loam, 1 to 6 percent slopes, very stony; 100 feet south and 1,200 feet east of the northwest corner of sec. 34, T. 47 N., R. 23 W., Chocolay Township, Marquette County, Michigan; USGS Skandia, Michigan, topographic quadrangle; lat. 46 degrees 25 minutes 51 seconds N. and long. 87 degrees 10 minutes 10 seconds W., NAD 27:

- Oa—0 to 2 inches; highly decomposed forest litter; moderate very fine granular structure; very friable; many very fine to coarse roots; about 15 percent stones; very strongly acid; abrupt smooth boundary.
- A—2 to 3 inches; black (10YR 2/1) very stony fine sandy loam, gray (5YR 5/1) dry; moderate fine granular structure; friable; many very fine to coarse roots; about 25 percent cobbles, 18 percent gravel, and 15 percent stones; very strongly acid; abrupt smooth boundary.
- E—3 to 8 inches; reddish brown (5YR 4/3) very stony fine sandy loam, pinkish gray (5YR 6/2) dry; moderate fine subangular blocky structure; friable; many very fine to coarse roots; about 25 percent cobbles, 18 percent gravel, and 15 percent stones; very strongly acid; abrupt wavy boundary.
- Bhs—8 to 14 inches; dark reddish brown (5YR 3/3) very stony fine sandy loam; weak fine subangular blocky structure; friable; many very fine to coarse roots; about 25 percent cobbles, 18 percent gravel, and 15 percent stones; strongly acid; clear irregular boundary.
- Bs—14 to 27 inches; reddish brown (5YR 4/4) very gravelly sandy loam; weak fine subangular blocky structure; friable; common very fine to medium roots; few medium distinct strong brown (7.5YR 4/6) masses of iron accumulation; about 30 percent gravel, 15 percent cobbles, and 10 percent stones; strongly acid; abrupt wavy boundary.
- 2R—27 inches; reddish brown (2.5YR 4/3) sandstone bedrock.

#### Cookson Series

The Cookson series consists of moderately deep, well drained soils on ground moraines. These soils formed in loamy eolian deposits over loamy till underlain by limestone, dolomite, or dolomitic sandstone bedrock. Permeability is moderate. Slopes range from 1 to 50 percent.

Typical pedon of Cookson silt loam, in an area of Amadon-Cookson silt loams, 1 to 6 percent slopes; 1,056 feet east and 2,112 feet south of the northwest corner of sec. 16, T. 42 N., R. 13 W., Doyle Township, Schoolcraft County, Michigan; USGS Blaney Park, Michigan, topographic quadrangle; lat. 46 degrees 02 minutes 08 seconds N. and long. 85 degrees 56 minutes 40 seconds W., NAD 27:

- Oi—0 to 3 inches; slightly decomposed forest litter.
- E—3 to 7 inches; brown (7.5YR 4/2) silt loam, gray (7.5YR 6/1) dry; weak medium subangular blocky structure parting to weak coarse granular; friable; common fine and few medium and coarse roots; strongly acid; clear wavy boundary.
- Bhs—7 to 11 inches; dark reddish brown (5YR 3/2) silt loam; weak medium subangular blocky structure; friable; many fine and few medium and coarse roots; strongly acid; clear wavy boundary.
- Bs—11 to 16 inches; dark brown (7.5YR 3/4) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; moderately acid; abrupt broken boundary.

- 2E—16 to 21 inches; brown (7.5YR 5/3) fine sandy loam, light gray (7.5YR 7/1) dry (E); occupies about 90 percent of the horizon surrounding reddish brown (5YR 4/3) loam (Bt); moderate medium subangular blocky structure; firm; few fine roots; many fine vesicular pores; about 3 percent fine and medium gravel; moderately acid; clear irregular boundary.
- 2Bt—21 to 31 inches; reddish brown (5YR 4/3) sandy clay loam; moderate medium subangular blocky structure; firm; few fine roots; many fine vesicular pores; few faint dark reddish brown (5YR 3/4) clay films on faces of peds; about 3 percent fine and medium gravel; neutral; clear wavy boundary.
- 2BC—31 to 36 inches; reddish brown (5YR 5/4) fine sandy loam; moderate medium subangular blocky structure parting to massive; firm; about 5 percent medium and fine gravel; moderately alkaline; strong effervescence; abrupt smooth boundary.
- 3R—36 inches; hard, fractured limestone.

#### **Croswell Series**

The Croswell series consists of very deep, moderately well drained soils on beach ridges and outwash plains. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 6 percent.

Typical pedon of Croswell sand, 0 to 6 percent slopes; 1,800 feet east and 950 feet north of the southwest corner of sec. 29, T. 44 N., R. 9 W., Garfield Township, Mackinac County, Michigan; USGS Gilchrist, Michigan, topographic quadrangle:

- Oe—0 to 2 inches; partially decomposed forest litter.
- E—2 to 6 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/2) dry; weak fine subangular blocky structure; very friable; common fine and medium roots; very strongly acid; abrupt wavy boundary.
- Bs1—6 to 8 inches; dark brown (7.5YR 4/4) sand; weak fine subangular blocky structure; very friable; many fine to coarse roots; strongly acid; clear irregular boundary.
- Bs2—8 to 15 inches; strong brown (7.5YR 5/6) sand; weak medium subangular blocky structure; very friable; common medium and fine roots; strongly acid; clear irregular boundary.
- BC—15 to 22 inches; brownish yellow (10YR 6/6) sand; single grain; loose; few fine roots; moderately acid; gradual wavy boundary.
- C—22 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; common fine prominent strong brown (7.5YR 5/6) iron accumulations beginning at a depth of 27 inches; moderately acid.

#### Cusino Series

The Cusino series consists of very deep, somewhat excessively drained soils on outwash plains, kame terraces, and moraines. These soils formed in sandy and gravelly outwash. Permeability is rapid in the sandy upper part and rapid or very rapid in the sandy and gravelly lower part. Slopes range from 0 to 70 percent.

Typical pedon of Cusino loamy sand, in an area of Kalkaska-Cusino complex, 1 to 6 percent slopes; 2,100 feet north and 600 feet east of the southwest corner of sec. 24, T. 46 N., R. 19 W., Munising Township, Alger County, Michigan; USGS Munising, Michigan, topographic quadrangle; lat. 46 degrees 22 minutes 04 seconds N. and long. 86 degrees 38 minutes 02 seconds W., NAD 27:

- Oa—0 to 2 inches; highly decomposed plant material; moderate medium granular structure; very friable; many very fine to very coarse roots; extremely acid; abrupt smooth boundary.
- E—2 to 8 inches; dark gray (5YR 4/1) loamy sand, gray (5YR 6/1) dry; weak fine subangular blocky structure; very friable; many very fine to very coarse roots; about 3 percent gravel; very strongly acid; abrupt wavy boundary.
- Bhs—8 to 10 inches; dark reddish brown (5YR 2.5/2) loamy sand; moderate fine subangular blocky structure; very friable; many very fine to very coarse roots; about 3 percent gravel; extremely acid; abrupt broken boundary.
- Bs1—10 to 14 inches; reddish brown (5YR 4/4) loamy sand; moderate fine subangular blocky structure; very friable; many very fine to very coarse roots between ortstein tongues; about 3 percent gravel; discontinuous tongues of strongly cemented, dark reddish brown (5YR 3/2) and reddish brown (5YR 4/4) ortstein 6 to 15 inches wide and 3 to 24 inches apart extend to a depth of 38 inches; ortstein occupies 43 percent (17 of 40 inches) of the horizon; very strongly acid; clear irregular boundary.
- Bs2—14 to 17 inches; light brown (7.5YR 4/6) sand; weak fine subangular blocky structure; very friable; few very fine and fine roots between ortstein tongues; about 3 percent gravel; discontinuous tongues of strongly cemented, dark reddish brown (5YR 3/4) and reddish brown (5YR 4/4) ortstein 3 to 10 inches wide and 10 to 30 inches apart; ortstein occupies 30 percent (12 of 40 inches) of the horizon; very strongly acid; gradual irregular boundary.
- BC—17 to 35 inches; strong brown (7.5YR 5/6) gravelly sand; single grain; loose; about 23 percent gravel; strongly acid; gradual wavy boundary.
- C—35 to 80 inches; light yellowish brown (10YR 6/4), stratified sand and gravelly sand; single grain; loose; about 7 percent gravel, 3 percent cobbles, and 1 percent stones; strongly acid.

#### Davies Series

The Davies series consists of very deep, poorly drained soils in depressions and drainageways on kame terraces and in glacial drainage channels. These soils formed in a loamy mantle overlying gravelly outwash. Permeability is moderately rapid in the upper part and very rapid in the lower part. Slopes range from 0 to 2 percent.

Typical pedon of Davies very cobbly muck; 400 feet south and 500 feet east of the northwest corner of sec. 29, T. 44 N., R. 20 W., Mathias Township, Alger County, Michigan; USGS Lake Stella, Michigan, topographic quadrangle; lat. 46 degrees 11 minutes 12 seconds N. and long. 86 degrees 50 minutes 32 seconds W., NAD 27:

- Oa—0 to 4 inches; black (N 2.5/) very cobbly muck; weak fine subangular blocky structure; very friable; many very fine to medium roots; about 15 percent gravel and 25 percent cobbles; strongly acid; abrupt smooth boundary.
- Bg—4 to 11 inches; grayish brown (2.5 Y 5/2) very cobbly sandy loam; weak medium subangular blocky structure; friable; common fine prominent strong brown (7.5YR 5/2) concentrations; few very fine and fine roots; about 30 percent gravel and 25 percent cobbles; moderately acid; gradual wavy boundary.
- C1—11 to 17 inches; olive gray (5Y 4/2) very cobbly sand; single grain; loose; about 30 percent gravel and 25 percent cobbles; moderately acid; gradual wavy boundary.
- C2—17 to 80 inches; dark grayish brown (2.5Y 4/2) very cobbly sand; single grain; loose; about 30 percent gravel and 25 percent cobbles; moderately acid.

#### **Dawson Series**

The Dawson series consists of very deep, very poorly drained soils in depressions on ground moraines, disintegration moraines, and outwash plains. These soils formed in herbaceous material 16 to 51 inches thick over sandy deposits. Permeability is moderately slow to moderately rapid in the organic material and rapid in the sandy underlying material. Slopes range from 0 to 2 percent.

Typical pedon of Dawson peat, in an area of Dawson-Loxley-Greenwood peats; 2,640 feet south and 1,320 feet east of the northwest corner of sec. 13, T. 42 N., R. 16 W., Hiawatha Township, Schoolcraft County, Michigan; USGS Hiawatha, Michigan, topographic quadrangle; lat. 46 degrees 02 minutes 02 seconds N. and long. 86 degrees 15 minutes 20 seconds W., NAD 27:

- Oi—0 to 10 inches; peat, reddish brown (5YR 4/3) broken face and rubbed; about 95 percent fiber, 90 percent rubbed; massive; friable; fibers are herbaceous; many fine and medium roots; extremely acid; abrupt smooth boundary.
- Oa1—10 to 20 inches; muck, very dark gray (5YR 3/1) broken face and rubbed; about 75 percent fiber, 15 percent rubbed; weak thick platy structure; friable; fibers are herbaceous; few fine roots; extremely acid; abrupt smooth boundary.
- Oa2—20 to 38 inches; muck, black (5YR 2.5/1) broken face and rubbed; about 10 percent fiber, 1 percent rubbed; massive; friable; fibers are herbaceous; extremely acid; abrupt smooth boundary.
- 2C—38 to 80 inches; dark brown (7.5YR 3/3) fine sand; single grain; loose; many coarse prominent pale brown (10YR 6/3) masses of iron depletions with sharp boundaries on faces of peds; very strongly acid.

#### Deer Park Series

The Deer Park series consists of very deep, excessively drained soils on beach ridges and dunes. These soils formed in sandy beach deposits. Permeability is rapid. Slopes range from 0 to 60 percent.

Typical pedon of Deer Park sand, 0 to 10 percent slopes; 700 feet east and 900 feet north of the southwest corner of sec. 36, T. 50 N., R. 13 W., Burt Township, Alger County, Michigan; USGS Grand Marais, Michigan, topographic quadrangle; lat. 46 degrees 41 minutes 05.16 seconds N. and long. 85 degrees 52 minutes 09.1 seconds W., NAD 27:

- Oa—0 to 2 inches; black (7.5YR 2.5/1), partially decomposed organic material; many very fine to coarse roots; abrupt smooth boundary.
- A—2 to 3 inches; very dark gray (7.5YR 3/1) sand, gray (7.5YR 5/1) dry; weak fine granular structure; very friable; many very fine to coarse roots; extremely acid; abrupt wavy boundary.
- E—3 to 10 inches; pinkish gray (7.5YR 6/2) sand, light gray (7.5YR 7/1) dry; weak very fine subangular blocky structure; very friable; many very fine to coarse roots; very strongly acid; abrupt wavy boundary.
- Bs1—10 to 16 inches; dark yellowish brown (10YR 4/6) sand; weak very fine subangular blocky structure; very friable; common very fine to medium roots; very strongly acid; gradual wavy boundary.
- Bs2—16 to 21 inches; strong brown (7.5YR 5/6) sand; weak fine subangular blocky structure; very friable; common very fine to medium roots; very strongly acid; gradual wavy boundary.
- BC—21 to 33 inches; light brown (7.5YR 6/4) sand; weak fine subangular blocky structure; very friable; few very fine and fine roots; very strongly acid; gradual wavy boundary.

C—33 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few very fine and fine roots; strongly acid.

#### **Deerton Series**

The Deerton series consists of moderately deep, excessively drained soils on bedrock-controlled moraines and on bedrock benches in glacial drainage channels. These soils formed in sandy glaciofluvial deposits overlying sandstone bedrock. Permeability is rapid. Slopes range from 1 to 70 percent.

Typical pedon of Deerton sand, in an area of Deerton-Tokiahok-Trout Bay complex, 8 to 35 percent slopes, dissected; 700 feet north and 200 feet west of the southeast corner of sec. 27, T. 47 N., R. 20 W., Au Train Township, Alger County, Michigan; USGS Au Train, Michigan, topographic quadrangle; lat. 46 degrees 26 minutes 10 seconds N. and long. 86 degrees 46 minutes 48 seconds W., NAD 27:

- Oa—0 to 1 inch; well decomposed, black (5YR 2.5/1) and very dark gray (N 3/) leaf litter; extremely acid; abrupt smooth boundary.
- E—1 to 9 inches; pinkish gray (5YR 6/2) sand; weak fine granular structure; very friable; extremely acid; abrupt irregular boundary.
- Bhs—9 to 10 inches; dark reddish brown (5YR 3/2) loamy sand; weak fine subangular blocky structure; very friable; very strongly acid; abrupt irregular boundary.
- Bs—10 to 25 inches; reddish brown (5YR 4/4) sand; single grain; loose; 10 percent weakly cemented chunks of ortstein; very strongly acid; gradual smooth boundary.
- 2Cr—25 to 39 inches; dark yellowish brown (10YR 4/4) and very pale brown (10YR 8/3), highly weathered and fractured sandstone; moderately acid; gradual broken boundary.
- 2R—39 inches; consolidated sandstone bedrock.

#### **Deford Series**

The Deford series consists of very deep, poorly drained soils in depressions and drainageways on outwash plains and moraines. These soils formed in sandy glaciofluvial deposits. Permeability is rapid. Slopes range from 0 to 2 percent.

Typical pedon of Deford fine sand; 600 feet south and 200 feet west of the northeast corner of sec. 8, T. 41 N., R. 3 E., Detour Township, Chippewa County, Michigan; USGS Albany Island, Michigan, topographic quadrangle:

- A—0 to 4 inches; very dark gray (10YR 3/1) and dark grayish brown (10YR 4/2) fine sand, gray (10YR 5/1) and light brownish gray (10YR 6/2) dry; weak fine granular structure parting to single grain; very friable; many very fine and fine and few medium roots; neutral; abrupt wavy boundary.
- C1—4 to 18 inches; light yellowish brown (10YR 6/4) (uncoated sand grains) fine sand; single grain; loose; few medium prominent strong brown (7.5YR 5/6 and 5/8) masses of iron accumulation in root channels; few fine roots; slightly alkaline; gradual wavy boundary.
- C2—18 to 32 inches; pale brown (10YR 6/3) (uncoated sand grains) fine sand; single grain; loose; few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in root channels; slightly alkaline; gradual wavy boundary.
- Cg—32 to 80 inches; grayish brown (10YR 5/2) (uncoated sand grains) fine sand; single grain; loose; slightly alkaline.

## **Dillingham Series**

The Dillingham series consists of very deep, well drained, sandy soils on disintegration moraines. These soils have a fragipan. Permeability is moderately rapid in the upper part of the subsoil, slow in the fragipan, and moderately rapid in the substratum. Slopes range from 1 to 70 percent.

Typical pedon of Dillingham loamy sand, in an area of Dillingham-Kalkaska complex, 15 to 35 percent slopes; 1,750 feet east and 2,100 feet north of the southwest corner of sec. 29, T. 48 N., R. 12 W., McMillan Township, Luce County, Michigan; USGS Grand Marais Southeast, Michigan, topographic quadrangle; lat. 46 degrees 31 minutes 30 seconds N. and long. 85 degrees 50 minutes 20 seconds W., NAD 27:

- Oe—0 to 1 inch; partially decomposed leaf litter; weak medium granular structure; friable; common fine and medium roots; very strongly acid; abrupt smooth boundary.
- E—1 to 8 inches; brown (7.5YR 5/3) loamy sand, pinkish gray (7.5YR 7/2) dry; weak medium subangular blocky structure; friable; common fine to coarse roots; 1 percent cobbles; extremely acid; abrupt irregular boundary.
- Bhs—8 to 11 inches; dark brown (7.5YR 3/3) loamy sand; weak medium subangular blocky structure; friable; many fine to coarse roots; 1 percent cobbles; extremely acid; abrupt irregular boundary.
- Bs—11 to 21 inches; dark brown (7.5YR 3/4) loamy fine sand; weak medium subangular blocky structure; friable; many fine to coarse roots; 1 percent cobbles; extremely acid; abrupt irregular boundary.
- (E/B)x—21 to 31 inches; light reddish brown (5YR 6/3) fine sand, pinkish gray (7.5YR 6/2) dry (E); occupies about 60 percent of the horizon; surrounding peds of reddish brown (5YR 5/4) loamy fine sand (Bt); weak thick platy structure; very firm; common fine and medium roots in cracks; few thin clay films on faces of peds; many fine and medium vesicular and tubular pores; 1 percent gravel and 1 percent cobbles; extremely acid; clear wavy boundary.
- C—31 to 80 inches; reddish brown (5YR 5/4) and pinkish gray (5YR 6/2) sand with bands of reddish brown (2.5YR 5/4) loamy fine sand; massive with weak thick platy fragments; firm; 1 percent gravel and 1 percent cobbles; extremely acid.

#### Eben Series

The Eben series consists of very deep, well drained soils in glacial drainage channels. These soils formed in a very cobbly loamy mantle overlying extremely gravelly coarse sand (fig. 9). Permeability is moderately rapid in the loamy part of the profile and very rapid in the sandy part. Slopes range from 1 to 35 percent.

Typical pedon of Eben very cobbly sandy loam, 1 to 6 percent slopes, stony; about 2,000 feet south and 2,100 feet west of the northeast corner of sec. 15, T. 46 N., R. 21 W., Rock River Township, Alger County, Michigan; USGS Rock River, Michigan, topographic quadrangle; lat. 46 degrees 23 minutes 09 seconds N. and long. 86 degrees 54 minutes 58 seconds W., NAD 27:

- A—0 to 6 inches; very dark brown (10YR 2/2) very cobbly sandy loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine to coarse roots; about 23 percent gravel, 15 percent cobbles, 10 percent stones, and 1 percent boulders; slightly alkaline; clear wavy boundary.
- Bw1—6 to 22 inches; dark brown (10YR 3/3) very cobbly sandy loam, yellowish brown (10YR 5/4) dry; moderate fine subangular blocky structure; friable; many very fine to coarse roots; common dark grayish brown (10YR 4/2) worm casts;



Figure 9.—Profile of Eben very cobbly sandy loam. Depth is marked in inches.

about 25 percent gravel, 15 percent cobbles, 10 percent stones, and 1 percent boulders; slightly alkaline; gradual irregular boundary.

Bw2—22 to 25 inches; dark yellowish brown (10YR 3/4) very cobbly loamy sand; weak fine subangular blocky structure; friable; many very fine to coarse roots; about 23 percent gravel, 15 percent cobbles, 10 percent stones, and 1 percent boulders; neutral; clear irregular boundary.

2BC—25 to 35 inches; dark yellowish brown (10YR 4/4) extremely gravelly loamy coarse sand; single grain; loose; few very fine to medium roots; about 54 percent gravel, 15 percent cobbles, and 10 percent stones; slightly effervescent; moderately alkaline; gradual wavy boundary.

2C—35 to 80 inches; yellowish brown (10YR 5/4) extremely gravelly coarse sand; single grain; loose; few very fine to medium roots; about 59 percent gravel, 15 percent cobbles, and 10 percent stones; slightly effervescent; moderately alkaline.

# Ensign Series

The Ensign series consists of shallow, somewhat poorly drained soils on ground moraines and in glacial drainage channels. These soils formed in loamy till underlain by limestone bedrock. Permeability is moderate. Slopes range from 0 to 6 percent.

Typical pedon of Ensign fine sandy loam, 0 to 3 percent slopes, rocky; 1,750 feet east and 2,200 feet north of the southwest corner of sec. 28, T. 43 N., R. 5 W., Moran Township, Mackinac County, Michigan; USGS Kenneth, Michigan, topographic quadrangle:

Oe—0 to 1 inch; partially decomposed forest litter.

A—1 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; many fine to coarse roots; slightly alkaline; clear smooth boundary.

B/A—5 to 8 inches; fine sandy loam, dark yellowish brown (10YR 4/4) (B) and very dark grayish brown (10YR 3/2) (A); light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; friable; many fine to coarse roots; few fine

- distinct yellowish brown (10YR 5/6) iron accumulations; about 2 percent gravel; slightly alkaline; clear smooth boundary.
- Bw—8 to 15 inches; dark brown (10YR 4/3) sandy loam; moderate medium subangular blocky structure; friable; common fine to coarse roots; few medium distinct grayish brown (10YR 5/2) and few fine prominent strong brown (7.5YR 5/6) iron accumulations; about 2 percent gravel; slightly effervescent; slightly alkaline; abrupt smooth boundary.
- 2R—15 inches; fractured limestone bedrock.

## **Ensley Series**

The Ensley series consists of very deep, poorly drained soils in depressions and drainageways on ground moraines. These soils formed in loamy till. Permeability is moderate. Slopes range from 0 to 2 percent.

Typical pedon of Ensley muck; 120 feet west and 200 feet south of the northeast corner of sec. 9, T. 43 N., R. 26 W., Wells Township, Marquette County, Michigan; USGS Northland NE, Michigan, topographic quadrangle; lat. 46 degrees 08 minutes 39 seconds N. and long. 87 degrees 33 minutes 16 seconds W., NAD 27:

- Oa—0 to 5 inches; black (10YR 2/1) muck; moderate fine granular structure; very friable; many very fine to coarse roots; neutral; clear wavy boundary.
- A—5 to 7 inches; black (10YR 2/1) mucky loam, very dark gray (10YR 3/1) dry; moderate fine granular structure; friable; many very fine to coarse roots; about 3 percent gravel; neutral; clear smooth boundary.
- Bw—7 to 19 inches; brown (7.5YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; common very fine to medium roots; common fine prominent light brownish gray (10YR 6/2) iron depletions; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; about 8 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.
- C—19 to 80 inches; brown (7.5YR 5/4) gravelly fine sandy loam; massive with weakly expressed thick platiness inherent from deposition; friable; few very fine and fine roots; about 20 percent gravel and 5 percent cobbles; slightly effervescent; slightly alkaline.

#### Escanaba Series

The Escanaba series consists of very deep, well drained soils on drumlins and ground moraines. These soils formed in a sandy mantle over loamy till. Permeability is moderately rapid in the sandy part of the profile and moderate in the loamy lower part. Slopes range from 1 to 35 percent.

Typical pedon of Escanaba loamy fine sand, 6 to 18 percent slopes; 1,400 feet north and 2,300 feet east of the southwest corner of sec. 31, T. 45 N., R. 27 W., Tilden Township, Marquette County, Michigan; USGS Green Hills, Michigan, topographic quadrangle; lat. 46 degrees 15 minutes 03 seconds N. and long. 87 degrees 43 minutes 59 seconds W., NAD 27:

- Oe—0 to 1 inch; partially decomposed forest litter.
- A—1 to 3 inches; black (5YR 2.5/1) loamy fine sand, dark gray (5YR 4/1) dry; weak fine granular structure; very friable; many very fine to coarse roots; about 3 percent gravel; moderately acid; abrupt wavy boundary.
- E—3 to 6 inches; reddish gray (5YR 5/2) loamy fine sand, pinkish gray (5YR 6/2) dry; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 3 percent gravel; moderately acid; abrupt wavy boundary.

- Bs1—6 to 12 inches; dark reddish brown (5YR 3/4) loamy fine sand; weak fine subangular blocky structure; very friable; many very fine to medium roots; about 3 percent gravel; moderately acid; clear wavy boundary.
- Bs2—12 to 26 inches; brown (7.5YR 4/4) loamy fine sand; weak fine subangular blocky structure; very friable; few fine and medium roots; moderately acid; clear wavy boundary.
- E/B—26 to 35 inches; reddish brown (5YR 5/3) loamy fine sand, pinkish gray (5YR 6/2) dry (E); occupies about 60 percent of the horizon; occurs as tongues extending into or completely surrounding isolated remnants of dark reddish brown (5YR 3/4) fine sandy loam (Bt); few distinct discontinuous dark reddish brown (5YR 3/3) clay films on faces of peds; weak medium subangular blocky structure; friable; few fine and medium roots; common very fine vesicular pores; about 3 percent gravel and 2 percent cobbles; neutral; clear irregular boundary.
- Bt—35 to 42 inches; dark reddish brown (5YR 3/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; few distinct discontinuous dark reddish brown (5YR 3/3) clay films on faces of peds; common very fine vesicular pores; about 3 percent gravel and 2 percent cobbles; neutral; gradual wavy boundary.
- C—42 to 80 inches; reddish brown (5YR 5/4) gravelly fine sandy loam; massive with weakly expressed thin platiness inherent from deposition; friable; few fine and medium roots; about 14 percent gravel and 6 percent cobbles; slightly effervescent; slightly alkaline.

#### **Evart Series**

The Evart series consists of very deep, poorly drained soils on flood plains. These soils formed in silty and sandy alluvium. Permeability is rapid. Slopes range from 0 to 2 percent.

Typical pedon of Evart silt loam, in an area of Evart-Pelkie-Sturgeon complex, 0 to 4 percent slopes; 1,750 feet east and 1,550 feet south of the northwest corner of sec. 28, T. 44 N., R. 26 W., Forsyth Township, Marquette County, Michigan; USGS Northland NE, Michigan, topographic quadrangle; lat. 46 degrees 11 minutes 02 seconds N. and long. 87 degrees 34 minutes 33 seconds W., NAD 27:

- A1—0 to 10 inches; very dark brown (10YR 2/2) silt loam, brown (10YR 4/3) dry; weak fine granular structure; friable; many very fine to coarse roots; common fine prominent red (2.5YR 5/8) masses of iron accumulation; neutral; clear wavy boundary.
- A2—10 to 18 inches; black (10YR 2/1) loamy fine sand, very dark grayish brown (10YR 3/2) dry; weak medium subangular blocky structure; friable; few very fine to medium roots; few fine prominent red (2.5YR 5/8) masses of iron accumulation; slightly acid; clear wavy boundary.
- 2Cg1—18 to 40 inches; grayish brown (10YR 5/2) sand; single grain; loose; few thin bands of very dark brown (10YR 2/2), well decomposed organic material; neutral; clear wavy boundary.
- 2Cg2—40 to 80 inches; grayish brown (10YR 5/2) sand; single grain; loose; few thin bands of very dark brown (10YR 2/2), well decomposed organic material; about 6 percent gravel; slightly alkaline.

#### Fence Series

The Fence series consists of very deep, moderately well drained soils on lake plains. These soils formed in stratified silty and loamy glaciolacustrine deposits.

Permeability is moderate in the solum and moderately slow in the substratum. Slopes range from 1 to 12 percent.

Typical pedon of Fence very fine sandy loam, 1 to 12 percent slopes, dissected; 1,150 feet west and 500 feet south of the northeast corner of sec. 26, T. 46 N., R. 24 W., West Branch Township, Marquette County, Michigan; USGS Little Lake, Michigan, topographic quadrangle; lat. 46 degrees 21 minutes 37 seconds N. and long. 87 degrees 16 minutes 01 second W., NAD 27:

- A—0 to 3 inches; very dark gray (5YR 3/1) very fine sandy loam, gray (5YR 5/1) dry; weak medium subangular blocky structure; friable; many very fine to coarse roots; strongly acid; abrupt smooth boundary.
- E—3 to 7 inches; reddish gray (5YR 5/2) very fine sandy loam, pinkish gray (5YR 6/2) dry; weak fine subangular blocky structure; very friable; common very fine to coarse roots; moderately acid; abrupt wavy boundary.
- Bhs—7 to 11 inches; dark reddish brown (5YR 3/2) very fine sandy loam; moderate medium subangular blocky structure; friable; many very fine to medium roots; about 1 percent gravel; moderately acid; clear wavy boundary.
- Bs—11 to 16 inches; reddish brown (5YR 4/4) very fine sandy loam; moderate medium subangular blocky structure; friable; common very fine to medium roots; about 1 percent gravel; moderately acid; clear wavy boundary.
- Bw—16 to 19 inches; yellowish brown (10YR 5/4) loamy very fine sand; weak thick platy structure parting to weak fine subangular blocky; very friable; few very fine to medium roots; about 1 percent gravel; moderately acid; clear wavy boundary.
- B/E—19 to 42 inches; reddish brown (2.5YR 4/4) and red (2.5YR 4/6) silt loam (Bt); common distinct reddish brown (2.5YR 4/4) clay films on faces of peds; occupies about 60 percent of the horizon; penetrated by tongues of reddish brown (5YR 5/3) very fine sandy loam, pinkish gray (5YR 7/2) dry (E); moderate very thick platy structure parting to moderate medium subangular blocky; friable; few very fine to medium roots; common fine prominent strong brown (7.5YR 5/6 and 4/6) masses of iron accumulation; about 1 percent gravel; moderately acid; clear irregular boundary.
- C1—42 to 57 inches; stratified reddish brown (2.5YR 4/4) silt loam, reddish brown (5YR 5/4) very fine sandy loam, and red (2.5YR 4/6) silty clay loam; massive with strong thick platiness inherent from deposition; friable; few very fine to medium roots; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid; clear wavy boundary.
- C2—57 to 80 inches; stratified reddish brown (5YR 5/4) silt loam and brown (7.5YR 5/3) very fine sand; massive with weak very thick platiness inherent from deposition; friable; few fine distinct strong brown (7.5YR 5/6) and brown (7.5YR 5/4) masses of iron accumulation; moderately acid.

#### Finch Series

The Finch series consists of very deep, somewhat poorly drained soils on outwash plains. These soils formed in sandy deposits. They contain ortstein. Permeability is moderate or moderately rapid in the ortstein layer and rapid in the rest of the profile. Slopes range from 0 to 3 percent.

Typical pedon of Finch sand, in an area Markey-Spot-Finch complex, 0 to 3 percent slopes; 1,500 feet east of the center of sec. 8, T. 44 N., R. 7 W., Hendricks Township, Mackinac County, Michigan; USGS Rexton, Michigan, topographic quadrangle:

- Oe—0 to 1 inch; partially decomposed forest litter.
- E—1 to 11 inches; pinkish gray (10YR 6/2) sand, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; very friable; few fine to coarse roots; strongly acid; clear irregular boundary.
- Bsm1—11 to 18 inches; dark brown (7.5YR 3/4) and dark reddish brown (7.5YR 3/2) sand; massive; very hard; ortstein occupies 100 percent of the horizon and is strongly cemented; ortstein occurs as a continuous layer and as tongues that extend to a depth of 21 inches; many medium distinct strong brown (7.5YR 5/6) iron accumulations; strongly acid; clear irregular boundary.
- Bsm2—18 to 42 inches; sand with a splotchy color pattern of dark brown (7.5YR 4/4 and 3/4) and brown (7.5YR 5/4); massive; very hard; ortstein occupies 90 percent of the horizon and is strongly cemented; ortstein occurs as a nearly continuous layer; common medium distinct strong brown (7.5YR 5/6) iron accumulations; strongly acid; gradual wavy boundary.
- C—42 to 80 inches; yellowish brown (10YR 5/6) fine sand; single grain; loose; moderately acid.

# Frohling Series

The Frohling series consists of very deep, well drained soils on bedrock-controlled moraines. These soils formed in loamy till and are shallow or moderately deep to a fragipan. Permeability is moderate in the upper part of the profile and very slow in the fragipan. Slopes range from 4 to 70 percent.

Typical pedon of Frohling fine sandy loam, in an area of Frohling-Tokiahok complex, 8 to 35 percent slopes, dissected, very stony; 600 feet north and 2,150 feet west of the southeast corner of sec. 12, T. 45 N., R. 24 W., Marquette County, Michigan; USGS Carlshend, Michigan, topographic quadrangle; lat. 46 degrees 18 minutes 28 seconds N. and long. 87 degrees 14 minutes 58 seconds W., NAD 27:

- Oe—0 to 1 inch; moderately decomposed forest litter.
- A—1 to 2 inches; very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; many very fine to coarse roots; about 5 percent cobbles and 3 percent gravel; strongly acid; abrupt smooth boundary.
- E—2 to 7 inches; reddish gray (5YR 5/2) fine sandy loam, light gray (5YR 7/1) dry; weak thin platy structure parting to weak very fine subangular blocky; friable; many very fine to coarse roots; about 5 percent cobbles and 3 percent gravel; strongly acid; abrupt wavy boundary.
- Bhs—7 to 9 inches; dark reddish brown (5YR 3/3) fine sandy loam; moderate fine subangular blocky structure; friable; many very fine to coarse roots; about 5 percent cobbles and 3 percent gravel; strongly acid; abrupt broken boundary.
- Bs—9 to 16 inches; reddish brown (5YR 4/4) fine sandy loam; moderate fine subangular blocky structure; friable; many very fine to coarse roots; about 5 percent cobbles and 3 percent gravel; strongly acid; clear wavy boundary.
- (E/B)x—16 to 34 inches; reddish brown (5YR 5/3) loamy fine sand, light gray (5YR 7/1) dry (E); occupies about 70 percent of the horizon; surrounding peds of reddish brown (5YR 4/4) fine sandy loam (Bt); common distinct red (2.5YR 4/6) clay films on faces of peds and in root channels; weak thin platy structure parting to weak very fine subangular blocky; very firm; few very fine to medium roots in cracks 12 to 24 inches apart; common very fine vesicular pores; about 5 percent cobbles and 3 percent gravel; moderately acid; gradual irregular boundary.
- (B/E)x—34 to 80 inches; reddish brown (2.5YR 4/4) fine sandy loam (Bt); common distinct red (2.5YR 4/6) clay films on faces of peds and in root channels; occupies

about 60 percent of the horizon; surrounding peds of reddish brown (2.5YR 5/3) loamy fine sand, light gray (5YR 7/1) dry (E); weak medium platy structure parting to weak fine subangular blocky; very firm; few very fine to medium roots in cracks 12 to 24 inches apart; common very fine vesicular pores; about 5 percent cobbles and 3 percent gravel; strongly acid.

# **Furlong Series**

The Furlong series consists of moderately deep, somewhat excessively drained soils on kame terraces overlying bedrock benches. These soils formed in sandy glaciofluvial deposits overlying dolomitic sandstone bedrock (fig. 10). Permeability is rapid. Slopes range from 1 to 15 percent.

Typical pedon of Furlong sand, 0 to 6 percent slopes, rocky; 165 feet east and 2,805 feet south of the northwest corner of sec. 34, T. 43 N., R. 4 W., Brevort Township, Mackinac County, Michigan; USGS Ozark SE, Michigan, topographic quadrangle:

Oe—0 to 1 inch; moderately decomposed forest litter.

- A—1 to 2 inches; black (10YR 2/1) sand, gray (10YR 5/1) dry; single grain; loose; many very fine and fine roots; very strongly acid; abrupt wavy boundary.
- E—2 to 5 inches; pinkish gray (5YR 6/2) sand, pinkish gray (7.5YR 6/2) dry; single grain; loose; many fine to coarse roots; about 5 percent gravel; very strongly acid; abrupt wavy boundary.
- Bhs—5 to 7 inches; dark reddish brown (5YR 3/3) sand; single grain; loose; many fine to coarse roots between columns of ortstein; columns of weakly cemented ortstein extend into the Bs1 horizon; ortstein occupies 15 percent of the horizon; about 5 percent gravel; very strongly acid; abrupt wavy boundary.
- Bs1—7 to 13 inches; dark brown (7.5YR 3/4) sand; single grain; loose; common fine and medium roots between columns of ortstein; columns of weakly cemented ortstein extend into the Bs2 horizon; ortstein occupies 15 percent of the horizon; about 5 percent gravel; very strongly acid; abrupt wavy boundary.
- Bs2—13 to 19 inches; reddish brown (5YR 4/3) sand; single grain; loose; few fine roots between columns of ortstein; columns of strongly cemented ortstein extend into this horizon from the Bs1 horizon; ortstein occupies 5 percent of the horizon; moderately acid; abrupt wavy boundary.
- C—19 to 22 inches; brown (7.5YR 5/4) sand; single grain; loose; very few fine roots; about 5 percent gravel; slightly alkaline; abrupt smooth boundary.
- 2R—22 inches; fractured, hard limestone bedrock.

### Garlic Series

The Garlic series consists of very deep, well drained, sandy soils on pitted outwash plains and disintegration moraines. Permeability is rapid. Slopes range from 0 to 60 percent.

Typical pedon of Garlic sand, 0 to 6 percent slopes, on a slope of 1 percent; 2,600 feet south of the northeast corner of sec. 13, T. 49 N., R. 12 W., Burt Township, Alger County, Michigan; USGS Grand Marais Northeast, Michigan, topographic quadrangle; lat. 46 degrees 38 minutes 34 seconds N. and long. 85 degrees 51 minutes 52 seconds W., NAD 27:

Oe—0 to 2 inches; partially decomposed forest litter; moderate medium granular structure; friable; extremely acid; clear wavy boundary.



Figure 10.—Profile of Furlong sand. Limestone bedrock is at a depth of about 32 inches.

- E—2 to 9 inches; brown (7.5YR 5/2) sand, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; friable; many fine to coarse roots; extremely acid; clear wavy boundary.
- Bhs—9 to 11 inches; dark reddish brown (5YR 3/2) sand; weak medium subangular blocky structure; friable; many fine to coarse roots; extremely acid; clear irregular boundary.
- Bs—11 to 20 inches; yellowish red (5YR 4/6) sand; weak medium subangular blocky structure; friable; dark reddish brown (5YR 3/2 and 3/4) and yellowish red (5YR 4/6) ortstein makes up 62 percent of the horizon and occurs as columns that extend into the BC horizon; few fine to coarse roots between ortstein columns; very strongly acid; clear irregular boundary.
- BC—20 to 29 inches; yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) sand; weak fine subangular blocky structure; friable; few fine roots; strongly acid; gradual irregular boundary.
- C1—29 to 47 inches; light yellowish brown (10YR 6/4) fine sand; few thin brown (10YR 5/3) color bands; single grain; loose; very strongly acid; clear wavy boundary.

C2—47 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; 1 percent gravel; very strongly acid.

# Gay Series

The Gay series consists of very deep, poorly drained soils in depressions and drainageways on bedrock-controlled moraines. These soils formed in loamy till. Permeability is moderate. Slopes range from 0 to 2 percent.

Typical pedon of Gay muck; 280 feet west and 1,200 feet north of the southeast corner of sec. 20, T. 51 N., R. 32 W., L'Anse Township, Baraga County, Michigan; USGS L'Anse, Michigan, topographic quadrangle:

- Oa—0 to 4 inches; very dark gray (10YR 3/1) muck; moderate medium granular structure; friable; many roots; strongly acid; abrupt smooth boundary.
- A—4 to 7 inches; dark gray (10YR 4/1) fine sandy loam, gray (10YR 6/1) dry; weak fine subangular blocky structure; friable; many roots; strongly acid; clear smooth boundary.
- Eg—7 to 11 inches; light brownish gray (10YR 6/2) sandy loam; few fine distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; common roots; about 2 percent gravel; moderately acid; clear wavy boundary.
- Bw—11 to 16 inches; brown (7.5YR 5/4) sandy loam; weak medium platy structure parting to weak fine subangular blocky; friable; common roots; many medium prominent grayish brown (10YR 5/2) iron depletions and common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation; about 4 percent gravel; moderately acid; clear wavy boundary.
- BC—16 to 30 inches; reddish brown (2.5YR 4/4) sandy loam; massive; friable; few roots; many medium prominent strong brown (7.5YR 5/6) and common fine distinct reddish brown (5YR 5/3) masses of iron accumulation; about 4 percent gravel; slightly acid; clear wavy boundary.
- C—30 to 80 inches; reddish brown (2.5YR 4/4) sandy loam; massive; friable; about 5 percent gravel; slightly acid.

# Gongeau Series

The Gongeau series consists of shallow, poorly drained soils in depressions and drainageways and on seepy side slopes of bedrock benches. These soils formed in sandy and loamy glaciofluvial deposits. Permeability is rapid above the bedrock, moderately slow in the Cr horizon, and extremely slow in the unweathered bedrock. Slopes range from 0 to 12 percent.

Typical pedon of Gongeau muck, in an area of Jeske-Gongeau-Deerton complex, bedrock terrace, 1 to 20 percent slopes; 600 feet west and 650 feet north of the southeast corner of sec. 30, T. 48 N., R. 17 W., Munising Township, Alger County, Michigan; USGS Grand Portal Point, Michigan, topographic quadrangle; lat. 46 degrees 31 minutes 22 seconds N. and long. 86 degrees 28 minutes 19 seconds W., NAD 27:

- Oa—0 to 5 inches; black (N 2.5/) muck; weak very fine granular structure; very friable; many very fine to coarse roots; extremely acid; clear smooth boundary.
- A—5 to 7 inches; very dark brown (10YR 2/2) mucky silt loam, gray (10YR 5/1) dry; weak fine subangular blocky structure; friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.
- 2C—7 to 18 inches; light gray (2.5Y 7/1) sand; single grain; loose; few very fine to medium roots; very strongly acid; clear smooth boundary.

2Cr—18 to 29 inches; light gray (2.5Y 7/1) and yellow (10YR 7/8), weathered sandstone; massive; firm or very firm; very strongly acid; abrupt wavy boundary. 2R—29 inches; light gray (10YR 7/2) and strong brown (7.5YR 5/6) sandstone bedrock.

### **Grand Sable Series**

The Grand Sable series consists of very deep, well drained soils on kame terraces. These soils formed in sandy and loamy eolian deposits overlying sandy outwash. Permeability is moderately rapid in the upper part of the profile and rapid in the lower part. Slopes range from 1 to 35 percent.

Typical pedon of Grand Sable fine sand, 1 to 6 percent slopes; 1,400 feet south and 1,000 feet east of the northwest corner of sec. 15, T. 49 N., R. 21 W., Burt Township, Alger County, Michigan; USGS Grand Sable Lake, Michigan, topographic quadrangle; lat. 46 degrees 38 minutes 44 seconds N. and long. 86 degrees 02 minutes 56 seconds W., NAD 27:

- Oe—0 to 1 inch; very dark brown (7.5YR 2.5/2), partially decomposed forest litter; weak fine granular structure; very friable; very strongly acid; abrupt smooth boundary.
- A—1 to 4 inches; very dark gray (7.5YR 3/1) fine sand, gray (7.5YR 5/1) dry; weak fine granular structure; very friable; many very fine and fine and common medium and coarse roots; strongly acid; abrupt smooth boundary.
- C1—4 to 13 inches; brown (7.5YR 4/2) loamy fine sand; weak very fine subangular blocky structure; very friable; common very fine to coarse roots; moderately acid; abrupt broken boundary.
- C2—13 to 19 inches; brown (7.5YR 4/2) loamy fine sand; weak fine subangular blocky structure; very friable; common very fine to coarse roots; discontinuous thin very dark gray (7.5YR 3/1) buried A horizon; moderately acid; clear smooth boundary.
- C3—19 to 30 inches; brown (7.5YR 4/3) very fine sandy loam; weak fine subangular blocky structure; very friable; common very fine to coarse roots; moderately acid; clear smooth boundary.
- 2Eb—30 to 32 inches; brown (7.5YR 4/3) loamy sand; weak thin platy structure; very friable; common very fine to coarse roots; about 1 percent gravel; moderately acid; abrupt wavy boundary.
- 2Bsb1—32 to 37 inches; dark brown (7.5YR 3/4) sand; weak fine subangular blocky structure; friable; few very fine and fine roots; about 3 percent gravel; slightly acid; clear wavy boundary.
- 2Bsb2—37 to 43 inches; brown (7.5YR 4/4) sand; weak very fine subangular blocky structure; very friable; few very fine and fine roots; discontinuous vertical tongues of dark reddish brown (5YR 3/2) moderately cemented ortstein occupy about 25 percent (10 of 40 inches) of the horizon and extend into the 2BC horizon to a depth of 55 inches; tongues are 1 to 6 inches wide and 6 to 25 inches apart; about 3 percent gravel; slightly acid; gradual wavy boundary.
- 2BCb—43 to 55 inches; brown (7.5YR 5/4) sand; single grain; loose; about 4 percent gravel; slightly acid; gradual wavy boundary.
- 2Cb—55 to 99 inches; light brown (7.5YR 6/4) sand; single grain; loose; about 2 percent gravel; slightly acid.

### **Greenwood Series**

The Greenwood series consists of very deep, very poorly drained soils in depressions on outwash plains and moraines. These soils formed in herbaceous

material more than 51 inches thick. Permeability is moderate or moderately rapid. Slopes are 0 to 1 percent.

Typical pedon of Greenwood mucky peat; 800 feet north and 1,700 feet west of the southeast corner of sec. 13, T. 45 N., R. 19 W., Munising Township, Alger County, Michigan; USGS Juniper, Michigan, topographic quadrangle; lat. 46 degrees 17 minutes 26.25 seconds N. and long. 86 degrees 44 minutes 73 seconds W., NAD 27:

- Oe1—0 to 18 inches; mucky peat, black (10YR 2/1) broken face and rubbed; about 60 percent fiber, 50 percent rubbed; massive; nonsticky; common very fine to medium roots in the upper 4 inches; very strongly acid; clear smooth boundary.
- Oe2—18 to 65 inches; mucky peat, black (10YR 2/1) broken face and rubbed; about 70 percent fiber, 60 percent rubbed; massive; nonsticky; extremely acid; gradual smooth boundary.
- Oa—65 to 80 inches; muck, black (7.5YR 2.5/1) broken face and very dark brown (7.5YR 2.5/2) rubbed; 30 percent fiber, 5 percent rubbed; massive; nonsticky; very strongly acid.

# **Greylock Series**

The Greylock series consists of very deep, well drained soils on ground moraines and drumlins. These soils formed in loamy till. Permeability is moderate. Slopes range from 1 to 35 percent.

Typical pedon of Greylock fine sandy loam, 1 to 6 percent slopes; 100 feet west and 700 feet north of the southeast corner of sec. 10, T. 43 N., R. 4 W., Brevort Township, Mackinac County, Michigan; USGS Ozark NE, Michigan, topographic quadrangle:

- Oe—0 to 1 inch; moderately decomposed forest litter.
- A—1 to 6 inches; black (10YR 2/1) fine sandy loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; many fine to coarse roots; about 2 percent gravel and 1 percent cobbles; moderately acid; clear smooth boundary.
- E—6 to 7 inches; reddish gray (5YR 5/2) sandy loam, gray (10YR 6/1) dry; moderate medium subangular blocky structure; friable; many fine to coarse roots; about 2 percent gravel and 1 percent cobbles; moderately acid; abrupt wavy boundary.
- Bhs—7 to 9 inches; dark reddish brown; (5YR 3/2) fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; about 2 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.
- Bs—9 to 19 inches; dark brown (7.5YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; common fine to coarse roots; about 5 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.
- E/B—19 to 26 inches; brown (7.5YR 5/2) loamy sand (E), light brownish gray (10YR 6/2) dry; occupies about 70 percent of the horizon; surrounding peds of reddish brown (5YR 4/3) sandy loam (Bt); moderate medium subangular blocky structure; firm; few medium and coarse roots; about 5 percent gravel; slightly acid; gradual wavy boundary.
- B/E—26 to 34 inches; reddish brown (5YR 4/3) sandy loam (Bt); few fine reddish brown (5YR 4/3) clay films on faces of peds; occupies about 85 percent of the horizon; surrounded by tongues of reddish brown (5YR 5/3) loamy sand (E); pinkish gray (7.5YR 6/2) dry; moderate medium subangular blocky structure; friable; few fine vesicular pores; few fine roots; about 5 percent gravel; neutral; gradual wavy boundary.
- C—34 to 80 inches; brown (7.5YR 5/3) sandy loam; massive; friable; about 10 percent gravel; slightly effervescent; slightly alkaline.

# Halfaday Series

The Halfaday series consists of very deep, moderately well drained, sandy soils on outwash plains and moraines. These soils formed in sandy glaciofluvial deposits. Permeability is rapid. Slopes range from 0 to 4 percent.

Typical pedon of Halfaday sand, 0 to 3 percent slopes; 800 feet west and 300 feet south of the northeast corner of sec. 4, T. 46 N., R. 17 W., Munising Township, Alger County, Michigan; USGS Melstrand, Michigan, topographic quadrangle; lat. 46 degrees 25 minutes 05 seconds N. and long. 86 degrees 25 minutes 55 seconds W., NAD 27:

- Oa—0 to 2 inches; well decomposed forest litter; weak very fine subangular blocky structure; very friable; many very fine to coarse roots; very strongly acid; abrupt wavy boundary.
- E—2 to 9 inches; pinkish gray (7.5YR 6/2) sand, light gray (7.5YR 7/1) dry; weak very fine subangular blocky structure; very friable; common very fine to coarse roots; about 2 percent gravel; very strongly acid; abrupt irregular boundary.
- Bhs—9 to 10 inches; dark brown (7.5YR 3/3) sand; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 2 percent gravel; extremely acid; abrupt irregular boundary.
- Bs1—10 to 20 inches; dark brown (7.5YR 3/4) sand; weak fine subangular blocky structure; friable; common very fine to medium roots; discontinuous vertical tongues of dark brown (7.5YR 3/3) and strong brown (7.5YR 4/6), strongly cemented ortstein occupy 20 percent (8 of 40 inches) of the horizon and extend into the Bs2 horizon to a depth of 50 inches; tongues are 2 to 5 inches wide and 6 to 24 inches apart; about 2 percent gravel; very strongly acid; gradual irregular boundary.
- Bs2—20 to 35 inches; brown (7.5YR 4/4) sand; weak very fine subangular blocky structure; very friable; few very fine to medium roots; discontinuous vertical tongues of dark brown (7.5YR 3/3) and strong brown (7.5YR 4/6), strongly cemented ortstein occupy 12 percent (5 of 40 inches) of the horizon; tongues are 2 to 3 inches wide and 10 to 30 inches apart; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation at a depth of 27 to 35 inches; about 4 percent gravel; very strongly acid; gradual irregular boundary.
- BC—35 to 50 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; about 4 percent gravel; strongly acid; gradual wavy boundary.
- C—50 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; about 4 percent gravel; slightly acid.

# Ingalls Series

The Ingalls series consists of deep, somewhat poorly drained soils on lake plains. These soils formed in sandy outwash overlying stratified loamy lacustrine sediments. Permeability is rapid in the overlying sandy part of the profile and moderately slow in the loamy part. Slopes range from 0 to 3 percent.

Typical pedon of Ingalls sand, 0 to 3 percent slopes; 2,200 feet south and 400 feet east of the northwest corner of sec. 16, T. 46 N., R. 19 W., Munising Township, Alger County, Michigan; USGS Munising, Michigan, topographic quadrangle; lat. 46 degrees 23 minutes 03 seconds N. and long. 86 degrees 41 minutes 54 seconds W., NAD 27:

- Oa—0 to 4 inches; highly decomposed forest litter; moderate medium granular structure; very friable; many very fine to very coarse roots; ultra acid; clear wavy boundary.
- A—4 to 5 inches; very dark grayish brown (10YR 3/2) sand, gray (10YR 6/1) dry; weak fine subangular blocky structure; very friable; many very fine to very coarse roots; about 1 percent gravel; extremely acid; abrupt wavy boundary.
- E—5 to 14 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/1) dry; weak fine subangular blocky structure; loose; very few prominent very dark brown (10YR 2/2) organic stains on surfaces along root channels; common very fine to medium roots; about 1 percent gravel; extremely acid; abrupt irregular boundary.
- Bhs—14 to 16 inches; dark reddish brown (5YR 2.5/2) sand; weak medium subangular blocky structure; very friable; about 35 percent strongly cemented dark reddish brown (5YR 3/4 and 3/2) ortstein that occurs intermittently on a horizontal plane; common very fine to medium roots; about 1 percent gravel; extremely acid; abrupt broken boundary.
- Bs—16 to 22 inches; reddish brown (5YR 4/4) sand; weak medium subangular blocky structure; very friable; common medium distinct spherical yellowish red (5YR 5/8) iron-manganese masses on faces of peds; few very fine and fine roots; about 1 percent gravel; extremely acid; gradual irregular boundary.
- Bw—22 to 35 inches; strong brown (7.5YR 5/6) sand; weak fine subangular blocky structure; loose; few very fine and fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.
- 2C—35 to 80 inches; reddish brown (2.5YR 5/4) and brown (7.5YR 5/3), stratified silt loam and silt; massive with some weak medium platy structure; friable; few very fine and fine roots; about 1 percent gravel; moderately acid.

## Islandlake Series

The Islandlake series consists of very deep, somewhat excessively drained soils on disintegration moraines. These soils formed in sandy glaciofluvial deposits. Permeability is rapid. Slopes range from 0 to 60 percent.

Typical pedon of Islandlake sand, 0 to 6 percent slopes; 1,914 feet south and 2,310 feet west of the northeast corner of sec. 8, T. 43 N., R. 20 W., Masonville Township, Delta County, Michigan; USGS Lake Stella, Michigan, topographic quadrangle; lat. 46 degrees 08 minutes 01 second N. and long. 86 degrees 49 minutes 39 seconds W., NAD 27:

- Oi—0 to 1 inch; slightly decomposed forest litter.
- A—1 to 2 inches; black (7.5YR 2.5/1) sand, very dark gray (10YR 3/1) dry; weak very fine granular structure; very friable; many very coarse to very fine roots; about 1 percent fine gravel; very strongly acid; abrupt wavy boundary.
- E—2 to 8 inches; brown (7.5YR 5/3) sand, gray (10YR 6/1) dry; weak very fine subangular blocky structure; very friable; many very coarse to very fine roots; about 1 percent fine gravel; extremely acid; clear wavy boundary.
- Bhs—8 to 9 inches; dark reddish brown (5YR 2.5/2) sand; weak medium subangular blocky structure; very friable; many very coarse to very fine roots between columns of ortstein; columns of moderately cemented, dark reddish brown (5YR 3/2) and brown (7.5YR 5/4) ortstein 2 to 7 inches wide extend through this horizon into the Bs horizon; ortstein columns are 6 to 20 inches apart; ortstein occupies 22 percent of the horizon; about 1 percent fine gravel; very strongly acid; abrupt broken boundary.
- Bs1—9 to 26 inches; strong brown (7.5YR 4/6) sand; weak very fine subangular blocky structure; very friable; many fine to medium and few coarse roots between ortstein columns; columns of moderately cemented, dark reddish brown (5YR 3/2)

- and 3/3) and brown (7.5YR 5/4) ortstein 2 to 7 inches wide extend through this horizon into the Bs2 horizon; ortstein columns are 6 to 20 inches apart; ortstein occupies 22 percent of the horizon; about 1 percent fine gravel; strongly acid; clear wavy boundary.
- Bs2—26 to 41 inches; brown (7.5YR 5/4) sand; weak very fine subangular blocky structure; very friable; few very fine and fine roots between ortstein columns; columns of moderately cemented, dark reddish brown (5YR 3/2 and 3/3) and brown (7.5YR 5/4) ortstein 1 to 3 inches wide extend into this horizon from the Bs1 horizon; ortstein columns are 8 to 30 inches apart; ortstein occupies 5 percent of the horizon; about 1 percent fine gravel; strongly acid; abrupt wavy boundary.
- E and Bt—41 to 80 inches; brown (7.5YR 5/3) sand (E'); single grain; loose; lamellae of reddish brown (5YR 4/4) loamy sand (Bt); very fine granular structure; very friable; lamellae are ½ to ¼ inch thick; few fine roots; about 1 percent fine gravel; strongly acid.

### Jacobsville Series

The Jacobsville series consists of moderately deep, poorly drained soils in depressions on bedrock-controlled moraines. These soils formed in loamy till overlying sandstone bedrock. Permeability is moderate. Slopes range from 0 to 2 percent.

Typical pedon of Jacobsville muck; 1,900 feet west and 1,800 feet north of the southeast corner of sec. 36, T. 55 N., R. 32 W., Torch Lake Township, Houghton County, Michigan; USGS Traverse Island, Michigan, topographic quadrangle:

- Oa—0 to 5 inches; black (N 2.5/) muck; weak fine subangular blocky structure; very friable; many roots; strongly acid; abrupt smooth boundary.
- Eg—5 to 9 inches; dark reddish gray (5YR 4/2) sandy loam; weak medium subangular blocky structure; friable; few roots; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; about 5 percent gravel; strongly acid; clear wavy boundary.
- Bw—9 to 23 inches; dark reddish brown (2.5YR 3/4) sandy loam; weak fine and medium subangular blocky structure; friable; common fine prominent dark brown (7.5YR 4/2) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; about 5 percent gravel; moderately acid; clear wavy boundary.
- C—23 to 36 inches; reddish brown (2.5YR 4/4) sandy loam; weak medium subangular blocky structure; friable; common medium prominent dark reddish gray (5YR 4/2) iron depletions and few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; about 5 percent gravel; moderately acid; clear smooth boundary.
- 2R—36 inches; reddish brown (2.5YR 4/4) sandstone bedrock.

#### Jeske Series

The Jeske series consists of shallow, somewhat poorly drained soils on sandstone benches on bedrock-controlled moraines. These soils formed in sandy glaciofluvial deposits and in the underlying weathered sandstone (fig. 11). Permeability is rapid. Slopes range from 0 to 10 percent.

Typical pedon of Jeske sand, 0 to 4 percent slopes; 300 feet north and 200 feet east of the southwest corner of sec. 20, T. 46 N., R. 23 W., Skandia Township, Marquette County, Michigan; USGS Carlshend, Michigan, topographic quadrangle;



Figure 11.—Profile of Jeske sand. Sandstone bedrock is at a depth of about 70 centimeters.

lat. 46 degrees 21 minutes 55 seconds N. and long. 87 degrees 12 minutes 28 seconds W., NAD 27:

- Oe—0 to 1 inch; moderately decomposed forest litter; weak thin platy structure; very friable; many very fine to coarse roots; very strongly acid; clear smooth boundary.
- Oa—1 to 3 inches; black (N 2.5/), well decomposed forest litter; weak fine granular structure; very friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.
- C1—3 to 11 inches; light brownish gray (10YR 6/2) sand; single grain; loose; few very fine to medium roots; strongly acid; clear smooth boundary.
- C2—11 to 21 inches; very pale brown (10YR 8/2) sand; single grain; loose; moderately acid; abrupt smooth boundary.
- 2Cr—21 to 31 inches; dark reddish brown (5YR 3/2), weathered sandstone; massive; very firm; moderately acid; abrupt wavy boundary.
- 2R—31 inches; light gray (10YR 7/2) and strong brown (7.5YR 5/6) sandstone bedrock.

### Kalkaska Series

The Kalkaska series consists of very deep, somewhat excessively drained soils on disintegration moraines and outwash plains. These soils formed in sandy glaciofluvial deposits (fig. 12). Permeability is rapid. Slopes range from 0 to 70 percent.

Typical pedon of Kalkaska sand, 0 to 6 percent slopes; 1,400 feet west and 425 feet south of the northeast corner of sec. 31, T. 43 N., R. 15 W., Manistique Township, Schoolcraft County, Michigan; USGS Smith Lake, Michigan, topographic quadrangle; lat. 46 degrees 05 minutes 02 seconds N. and long. 86 degrees 13 minutes 27 seconds W., NAD 27:

- A—0 to 2 inches; black (10YR 2/1) sand, very dark gray (10YR 3/1) dry; weak medium granular structure; very friable; common fine and medium and few coarse roots; very strongly acid; abrupt wavy boundary.
- E—2 to 6 inches; brown (7.5YR 5/2) sand, gray (10YR 6/1) dry; weak medium subangular blocky structure; very friable; common fine to coarse roots; very strongly acid; clear irregular boundary.
- Bhs—6 to 8 inches; dark reddish brown (5YR 3/3) sand; weak medium subangular blocky structure; very friable; common fine and medium and few coarse roots between columns of ortstein; columns of strongly cemented, dark reddish brown (5YR 3/2) and brown (7.5YR 5/4) ortstein 3 to 10 inches wide extend through this horizon into the Bs horizon; ortstein columns are 6 to 20 inches apart; ortstein occupies 20 percent of the horizon; very strongly acid; clear irregular boundary.
- Bs—8 to 16 inches; strong brown (7.5YR 4/6) sand; weak fine subangular blocky structure; very friable; few fine and medium roots between ortstein columns; columns of moderately strongly cemented, dark reddish brown (5YR 3/2 and 3/3) and brown (7.5YR 5/4) ortstein 3 to 7 inches wide extend through this horizon into the BC horizon; ortstein columns are 6 to 20 inches apart; ortstein occupies 10 percent of the horizon; strongly acid; clear wavy boundary.
- BC—16 to 26 inches; strong brown (7.5YR 5/6) sand; single grain; loose; few fine roots between horizon; few fine roots between ortstein columns; columns of moderately strongly cemented, dark reddish brown (5YR 3/2 and 3/3) and brown (7.5YR 5/4) ortstein 1 to 3 inches wide extend into this horizon from the Bs horizon; ortstein columns are 8 to 30 inches apart; ortstein occupies 5 percent of the horizon; strongly acid; gradual wavy boundary.
- C1—26 to 42 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; moderately acid; gradual wavy boundary.
- C2—42 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; moderately acid.

#### Kinross Series

The Kinross series consists of very deep, poorly drained, sandy soils on lake plains and outwash plains. Permeability is rapid. Slopes range from 0 to 2 percent.

Typical pedon of Kinross muck; 200 feet east and 300 feet south of the northwest corner of sec. 15, T. 47 N., R. 9 W., McMillan Township, Luce County, Michigan; USGS Roy Lake North, Michigan, topographic quadrangle; lat. 46 degrees 40 minutes 42 seconds N. and long. 85 degrees 16 minutes 56 seconds W., NAD 27:

- Oa—0 to 3 inches; dark reddish brown (5YR 3/2) muck; friable; many fine to coarse roots; extremely acid; abrupt wavy boundary.
- Eg—3 to 14 inches; 50 percent grayish brown (10YR 5/2) and 50 percent dark gray (10YR 4/1) sand, light gray (10YR 7/1) and gray (10YR 6/1) dry; weak medium subangular blocky structure; friable; few fine roots; 1 percent gravel; extremely acid; gradual wavy boundary.



Figure 12.—Profile of Kalkaska sand. Depth is marked in centimeters.

Bhs—14 to 22 inches; dark brown (7.5YR 3/3) sand; weak medium subangular blocky structure; friable; few fine roots; few medium faint dark brown (7.5YR 3/2) masses of iron accumulation along root channels; strongly acid; gradual wavy boundary.

Bs—22 to 35 inches; dark yellowish brown (10YR 4/4) sand; weak medium subangular blocky structure; friable; strongly acid; gradual wavy boundary.

C—35 to 80 inches; yellowish brown (10YR 5/4) sand; single grain; loose; strongly acid.

### Kiva Series

The Kiva series consists of very deep, well drained soils on outwash plains. These soils formed in loamy eolian deposits over sandy outwash. Permeability is moderate in the loamy part and very rapid in the sandy part. Slopes range from 1 to 35 percent.

Typical pedon of Kiva fine sandy loam, 1 to 6 percent slopes; 900 feet west and 250 feet south of the northeast corner of sec. 26, T. 44 N., R. 21 W., Mathias Township, Alger County, Michigan; USGS Trenary, Michigan, topographic quadrangle; lat. 46 degrees 11 minutes 13 seconds N. and long. 86 degrees 53 minutes 22 seconds W., NAD 27:

- A—0 to 3 inches; black (7.5YR 2.5/1) fine sandy loam, gray (7.5YR 5/1) dry; moderate very fine granular structure; friable; many very fine to coarse roots; about 4 percent gravel and 1 percent cobbles; moderately acid; abrupt broken boundary.
- E—3 to 6 inches; brown (7.5YR 5/2) loamy fine sand, pinkish gray (7.5YR 7/2) dry; weak very fine subangular blocky structure; very friable; many very fine to coarse roots; about 4 percent gravel and 1 percent cobbles; few very fine vesicular pores; moderately acid; abrupt wavy boundary.
- Bs1—6 to 15 inches; dark brown (7.5YR 3/4) fine sandy loam; weak fine and very fine subangular blocky structure; friable; many very fine to coarse roots; about 8 percent gravel and 2 percent cobbles; few very fine vesicular pores; moderately acid; gradual wavy boundary.
- 2Bs2—15 to 23 inches; brown (7.5YR 4/4) gravelly loamy sand; weak fine and very fine subangular blocky structure; very friable; common very fine to medium roots; about 15 percent gravel and 4 percent cobbles; few very fine vesicular pores; moderately acid; gradual irregular boundary.
- 2BC—23 to 38 inches; brown (7.5YR 5/4) very gravelly sand; weak very fine subangular blocky structure; very friable; common very fine and fine roots; about 35 percent gravel and 8 percent cobbles; slightly alkaline; slightly effervescent; gradual wavy boundary.
- 2C—38 to 80 inches; yellowish brown (10YR 5/4), stratified sand and very gravelly sand; single grain; loose; few very fine and fine roots; about 40 percent gravel and 10 percent cobbles; slightly effervescent; moderately alkaline.

### Levasseur Series

The Levasseur series consists of shallow, somewhat poorly drained soils on bedrock benches. These soils formed in sandy and very channery wave-worked glaciofluvial deposits overlying sandstone bedrock (fig. 13). Permeability is very rapid. Slopes range from 0 to 3 percent.

Typical pedon of Levasseur extremely flaggy sand, in an area of Levasseur-Burt complex, 0 to 3 percent slopes, very stony; 1,900 feet east and 800 feet south of the northwest corner of sec. 35, T. 48 N., R. 22 W., Onota Township, Alger County, Michigan; USGS Laughing Fish Point, Michigan, topographic quadrangle; lat. 46 degrees 31 minutes 11 seconds N. and long. 87 degrees 01 minute 28 seconds W., NAD 27:

- Oi—0 to 1 inch; very dark brown (7.5YR 2.5/2), slightly decomposed forest litter; massive; very friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.
- Oa—1 to 3 inches; black (5YR 2.5/1), well decomposed forest litter; moderate very fine granular structure; very friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.



Figure 13.—Profile of Levasseur extremely flaggy sand. Jacobsville Sandstone is at a depth of about 13 inches.

- E—3 to 8 inches; dark reddish gray (5YR 4/2) extremely flaggy sand, pinkish gray (5YR 6/2) dry; weak very fine granular structure; very friable; many very fine to coarse roots; extremely acid; about 45 percent flagstones and 25 percent channers; clear wavy boundary.
- Bw—8 to 13 inches; dark yellowish brown (10YR 4/4) extremely flaggy sand; weak very fine subangular blocky structure; very friable; few fine faint dark yellowish brown (10YR 4/6) masses of iron accumulation; common very fine to medium roots and few coarse roots; about 45 percent flagstones and 25 percent channers; extremely acid; abrupt smooth boundary.
- 2R—13 inches; red (2.5YR 4/6) and white (2.5YR 8/1) Jacobsville Sandstone; common medium distinct dark brown (10YR 3/3) masses of iron concentration on the surface of the bedrock.

# Liminga Series

The Liminga series consists of very deep, well drained, sandy soils on moraines and outwash plains. These soils formed in sandy glaciofluvial deposits. Permeability is rapid. Slopes range from 0 to 6 percent.

Typical pedon of Liminga fine sand, 0 to 6 percent slopes; 400 feet east and 3,100 feet south of the northwest corner of sec. 33, T. 45 N., R. 10 W., Pentland Township, Luce County, Michigan; USGS Newberry, Michigan, topographic quadrangle; lat. 46 degrees 15 minutes 05 seconds N. and long. 85 degrees 34 minutes 12 seconds W., NAD 27:

Oe—0 to 1 inch; partially decomposed leaf litter; common fine roots; extremely acid; abrupt smooth boundary.

- E—1 to 7 inches; brown (7.5YR 4/2) fine sand, brown (7.5YR 5/2) dry; weak fine subangular blocky structure; friable; many fine to coarse roots; extremely acid; abrupt wavy boundary.
- Bhs—7 to 9 inches; dark brown (7.5YR 3/2) fine sand; weak fine subangular blocky structure; friable; many fine to coarse roots; extremely acid; abrupt broken boundary.
- Bs1—9 to 12 inches; strong brown (7.5YR 4/6) fine sand; weak fine subangular blocky structure; friable; common fine to coarse roots; extremely acid; abrupt broken boundary.
- Bs2—12 to 22 inches; strong brown (7.5YR 5/6) fine sand; weak fine subangular blocky structure; friable; common fine roots; ortstein occupies 30 percent of the horizon and is moderately cemented; ortstein occurs as tongues 2 to 5 inches wide; tongues of ortstein extend to a depth of 29 inches; extremely acid; clear irregular boundary.
- BC—22 to 31 inches; brownish yellow (10YR 6/6) fine sand; single grain; loose; extremely acid; clear wavy boundary.
- C—31 to 80 inches; brownish yellow (10YR 6/6) fine sand; single grain; loose; one thin reddish brown (5YR 5/4) band; extremely acid.

# Longrie Series

The Longrie series consists of moderately deep, well drained soils on ground moraines. These soils formed in loamy till deposits underlain by dolomitic sandstone. Permeability is moderate. Slopes range from 1 to 15 percent.

Typical pedon of Longrie sandy loam, 1 to 6 percent slopes; 2,300 feet east and 2,500 feet south of the northwest corner of sec. 17, T. 44 N., R. 6 W., Trout Lake Township, Chippewa County, Michigan; USGS Trout Lake, Michigan, topographic quandrangle; lat. 46 degrees 12 minutes 27 degrees N. and long. 85 degrees 04 minutes 55 seconds W., NAD 27:

- A—0 to 4 inches; black (5YR 2/1) sandy loam, dark gray (7.5YR 4/1) dry; moderate medium granular structure; friable; many fine to coarse roots; moderately acid; clear smooth boundary.
- E—4 to 9 inches; reddish gray (5YR 5/2) sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; moderately acid; clear wavy boundary.
- Bhs—9 to 11 inches; dark reddish brown (5YR 3/3) fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; moderately acid; clear irregular boundary.
- Bs—11 to 27 inches; reddish brown (5YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; many fine and medium roots; moderately acid; clear wavy boundary.
- C—27 to 31 inches; light brown (7.5YR 6/4) gravelly loam; massive; friable; common fine and medium roots; about 15 percent gravel and 5 percent cobbles; strong effervescence; moderately alkaline; abrupt smooth boundary.
- 2R—31 inches; limestone bedrock.

# Loxley Series

The Loxley series consists of very deep, very poorly drained soils in closed depressions on outwash plains, ground moraines, and disintegration moraines. These soils formed in herbaceous material more than 51 inches thick. Permeability is moderately slow to moderately rapid. Slopes are 0 to 1 percent.

Typical pedon of Loxley peat, in an area of Dawson, Loxley, and Greenwood soils; 1,320 feet east and 50 feet south of the northwest corner of sec. 14, T. 45 N., R. 9 W., Lakefield Township, Luce County, Michigan; USGS McMillan, Michigan, topographic quadrangle; lat. 46 degrees 17 minutes 20 seconds N. and long. 85 degrees 38 minutes 31 seconds W., NAD 27:

- Oi—0 to 8 inches; peat, dark yellowish brown (10YR 4/4) broken face and yellowish brown (10YR 5/4) rubbed; 100 percent sphagnum moss fibers, 95 percent rubbed; weak thick platy structure; friable; common fine and medium roots; extremely acid; abrupt smooth boundary.
- Oa1—8 to 15 inches; muck, black (5YR 2/1) broken face and rubbed; about 45 percent fibers, 5 percent rubbed; weak thick platy structure; friable; fibers are herbaceous; common fine and medium roots; very strongly acid; clear smooth boundary.
- Oa2—15 to 45 inches; muck, dark reddish brown (5YR 2/2) broken face and rubbed; about 45 percent fibers, 5 percent rubbed; massive; friable; fibers are herbaceous; very strongly acid; clear smooth boundary.
- Oa3—45 to 80 inches; muck, dark reddish brown (5YR 2/2) broken face and rubbed; about 55 percent fibers, 5 percent rubbed; massive; friable; fibers are herbaceous; very strongly acid.

# **Lupton Series**

The Lupton series consists of very deep, very poorly drained soils in depressions on ground moraines, disintegration moraines, bedrock-controlled moraines, and outwash plains. These soils formed in woody deposits more than 51 inches thick. Permeability is moderately slow to moderately rapid. Slopes range from 0 to 2 percent.

Typical pedon of Lupton peat, in an area of Carbondale, Lupton, and Tawas soils; 462 feet north and 2,310 feet east of the southwest corner of sec. 18, T. 42 N., R. 13 W., Mueller Township, Schoolcraft County, Michigan; USGS Blaney Park, Michigan, topographic quadrangle; lat. 46 degrees 01 minute 43 seconds N. and long. 85 degrees 58 minutes 45 seconds W., NAD 27:

- Oi—0 to 4 inches; peat, black (7.5YR 2.5/1) broken face and rubbed; about 90 percent fiber unrubbed, 80 percent rubbed; weak coarse granular structure; friable; many fine and common medium and coarse roots; neutral; abrupt smooth boundary.
- Oa1—4 to 14 inches; muck, black (5YR 2.5/1) broken face and rubbed; about 5 percent fiber, 1 percent rubbed; weak medium granular structure; friable; few fine to coarse roots; about 5 percent woody fragments throughout; slightly alkaline; abrupt smooth boundary.
- Oa2—14 to 40 inches; muck, black (N 2/) broken face and rubbed; about 15 percent fiber unrubbed, a trace rubbed; massive; friable; few fine roots; about 3 percent woody fragments throughout; slightly alkaline; abrupt smooth boundary.
- Oa3—40 to 80 inches; muck, black (N 2/) broken face and rubbed; about 15 percent fiber unrubbed, a trace rubbed; massive; friable; about 3 percent woody fragments throughout; slightly alkaline.

# Markey Series

The Markey series consists of very deep, very poorly drained soils in depressions on outwash plains. These soils formed in herbaceous material 16 to 50 inches thick overlying sandy outwash deposits. Permeability is moderately slow to moderately

rapid in the organic material and rapid in the underlying sandy material. Slopes are 0 to 1 percent.

Typical pedon of Markey mucky peat; 1,100 feet east and 2,480 feet south of the northwest corner of sec. 27, T. 46 N., R. 17 W., Munising Township, Alger County, Michigan; USGS Shingleton, Michigan, topographic quadrangle; lat. 46 degrees 21 minutes 18 seconds N. and long. 86 degrees 25 minutes 29 seconds W., NAD 27:

- Oe—0 to 3 inches; mucky peat, very dark brown (10YR 2/2) broken face and black (10YR 2/1) rubbed; about 50 percent fiber, 25 percent rubbed; weak fine granular structure; friable; fibers are herbaceous; many very fine and fine roots; extremely acid; abrupt smooth boundary.
- Oa1—3 to 9 inches; muck, very dark gray (10YR 3/1) broken face and rubbed; about 20 percent fibers, less than 5 percent rubbed; weak medium platy structure; friable; fibers are herbaceous; many very fine and fine roots; very strongly acid; clear smooth boundary.
- Oa2—9 to 20 inches; muck, very dark grayish brown (10YR 3/2) broken face and very dark gray (10YR 3/1) rubbed; about 10 percent fibers, less than 5 percent rubbed; weak medium platy structure; friable; fibers are herbaceous; many very fine and fine roots; very strongly acid; abrupt smooth boundary.
- 2Cg1—20 to 27 inches; dark grayish brown (10YR 4/2) sand; single grain; loose; few very fine roots at top of horizon; very strongly acid; gradual smooth boundary.
- 2Cg2—27 to 80 inches; brown (10YR 5/3) sand; single grain; loose; very strongly acid.

## Mashek Series

The Mashek series consists of very deep, moderately well drained soils on ground moraines. These soils are moderately deep or deep to dense till. They formed in loamy till over gravelly and sandy outwash deposits. Permeability is moderate above the dense till, moderately slow in the dense till, and rapid in the sandy part of the profile. Slopes range from 0 to 4 percent.

Typical pedon of Mashek fine sandy loam, sandy substratum, 0 to 4 percent slopes; 2,100 feet south and 1,300 feet west of the northeast corner of sec. 16, T. 46 N., R. 17 W., Munising Township, Alger County, Michigan; USGS Melstrand, Michigan, topographic quadrangle; lat. 46 degrees 23 minutes 05 seconds N. and long. 86 degrees 25 minutes 58 seconds W., NAD 27:

- A—0 to 6 inches; very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1) dry; moderate fine subangular blocky structure; friable; many very fine to coarse roots; about 4 percent gravel; strongly acid; clear smooth boundary.
- Bs—6 to 11 inches; brown (7.5YR 4/4) loamy sand; weak medium subangular blocky structure; very friable; common very fine to medium roots; about 4 percent gravel; strongly acid; gradual wavy boundary.
- E/B—11 to 23 inches; light brown (7.5YR 6/4) loamy sand, pinkish gray (7.5YR 7/2) dry (E); occupies about 60 percent of the horizon; surrounding isolated remnants of brown (7.5YR 4/4) fine sandy loam (Bt); moderate medium subangular blocky structure; friable; common very fine to medium roots; common very fine vesicular pores; about 6 percent gravel and 2 percent cobbles; moderately acid; gradual wavy boundary.
- B/E—23 to 38 inches; brown (7.5YR 4/4) fine sandy loam (Bt); few faint dark brown (7.5YR 3/4) clay films on face of peds; occupies about 60 percent of the horizon; surrounded by light brown (7.5YR 6/4) loamy sand, pinkish gray (7.5YR 7/2) dry (E); moderate medium subangular blocky structure; friable; common very fine to medium roots; common very fine vesicular pores; about 6 percent gravel and 2 percent cobbles; moderately acid; clear wavy boundary.

- 2Cd—38 to 63 inches; strong brown (7.5YR 5/4) gravelly fine sandy loam; massive with weakly expressed thin plates inherent from deposition; friable; few very fine and fine roots; about 20 percent gravel, 8 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.
- 3C—63 to 80 inches; yellowish brown (10YR 5/4) very gravelly sand; single grain; loose; few very fine and fine roots; about 30 percent gravel, 6 percent cobbles, and 4 percent stones; moderately acid.

### McMaster Series

The McMaster series consists of very deep, moderately well drained soils on recessional moraines and in glacial drainage channels. These soils formed in a loamy mantle overlying sandy and gravelly outwash. Permeability is moderately rapid in the loamy mantle and very rapid in the sandy part of the profile. Slopes range from 0 to 4 percent.

Typical pedon of McMaster cobbly sandy loam, 0 to 4 percent slopes; 600 feet east and 150 feet south of the northwest corner of sec. 30, T. 45 N., R. 21 W., Limestone Township, Alger County, Michigan; USGS Chatham, Michigan, topographic quadrangle; lat. 46 degrees 16 minutes 30.29 seconds N. and long. 86 degrees 59 minutes 19.53 seconds W., NAD 27:

- Oa—0 to 2 inches; highly decomposed forest litter; moderate fine granular structure; very friable; many very fine to coarse roots; very strongly acid; abrupt wavy boundary.
- A—2 to 4 inches; very dark gray (7.5YR 3/1) cobbly sandy loam, dark gray (7.5YR 4/1) dry; moderate fine granular structure; friable; many very fine to coarse roots; about 17 percent cobbles and 16 percent gravel; strongly acid; abrupt wavy boundary.
- E—4 to 8 inches; brown (7.5YR 4/2) very cobbly loamy sand, light brownish gray (10YR 6/2) dry; moderate fine subangular blocky structure; friable; many very fine to coarse roots; about 17 percent cobbles and 20 percent gravel; strongly acid; abrupt wavy boundary.
- Bhs—8 to 11 inches; dark brown (7.5YR 3/3) very cobbly sandy loam; moderate fine subangular blocky structure; friable; many very fine to coarse roots; about 17 percent cobbles and 20 percent gravel; strongly acid; clear wavy boundary.
- 2Bs—11 to 24 inches; dark brown (7.5YR 3/4) very gravelly loamy sand; weak fine subangular blocky structure; friable; common very fine to medium roots; about 30 percent gravel, 12 percent cobbles, and 2 percent stones; neutral; clear wavy boundary.
- 2BC—24 to 39 inches; dark yellowish brown (10YR 4/4) very gravelly coarse sand; weak very fine subangular blocky structure; very friable; common very fine to medium roots; about 40 percent gravel, 15 percent cobbles, and 2 percent stones; slightly effervescent; moderately alkaline; gradual wavy boundary.
- 2C—39 to 80 inches; yellowish brown (10YR 5/4) extremely gravelly coarse sand; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; single grain; loose; few very fine and fine roots; about 50 percent gravel, 21 percent cobbles, and 2 percent stones; slightly effervescent; moderately alkaline.

#### McMillan Series

The McMillan series consists of very deep, well drained soils on moraines. These soils formed in sandy sediments with a thin loamy cap. Permeability is moderate in the upper loamy part of the profile and rapid in the lower sandy sediments. Slopes range from 1 to 35 percent.

Typical pedon of McMillan fine sandy loam; 1,000 feet east and 1,250 feet south of the northwest corner of sec. 4, T. 45 N., R. 11 W., Lakefield Township, Luce County, Michigan; USGS McMillan topographic quadrangle; lat. 46 degrees 19 minutes 50 seconds N. and long. 85 degrees 41 minutes 35 seconds W., NAD 27:

- Oe—0 to 1 inch; partially decomposed forest litter; common fine roots; abrupt smooth boundary.
- A—1 to 4 inches; very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; many fine to coarse roots; 2 percent gravel; very strongly acid; abrupt wavy boundary.
- E—4 to 6 inches; brown (7.5YR 5/2) fine sandy loam, pinkish gray (7.5YR 6/2) dry; moderate medium subangular blocky structure; friable; many fine to coarse roots; very strongly acid; abrupt broken boundary.
- Bhs—6 to 9 inches; dark brown (7.5YR 3/3) very fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; 5 percent gravel; very strongly acid; clear irregular boundary.
- Bs1—9 to 16 inches; brown (7.5YR 4/4) very fine sandy loam; moderate medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; very strongly acid; clear wavy boundary.
- Bs2—16 to 22 inches; strong brown (7.5YR 5/6) loamy fine sand; moderate medium subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.
- Bw—22 to 32 inches; reddish yellow (7.5YR 6/6) sand; weak medium subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.
- E and Bt—32 to 80 inches; 70 percent light brown (7.5YR 6/3) sand (E), pinkish gray (7.5YR 7/2) dry; 30 percent lamellae of brown (7.5YR 5/4) loamy sand (Bt); massive; friable; few fine roots; 1 percent gravel; strongly acid.

#### Meehan Series

The Meehan series consists of very deep, somewhat poorly drained soils in swales between beach ridges. These soils formed in sandy lacustrine deposits. Permeability is rapid. Slopes range from 0 to 2 percent.

Typical pedon of Meehan sand, in an area of Wurtsmith-Meehan sands, 0 to 8 percent slopes; 200 feet east and 550 feet south of the northwest corner of sec. 13, T. 47 N., R. 19 W.; Grand Island Township, Alger County, Michigan; USGS Munising, Michigan, topographic quadrangle:

- Oa—0 to 3 inches: well decomposed forest litter.
- A—3 to 5 inches; very dark gray (10YR 2/1) sand, gray (10YR 4/1) dry; weak very fine granular structure; very friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.
- Bw1—5 to 11 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few very fine and fine roots; very strongly acid; gradual wavy boundary.
- Bw2—11 to 28 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few very fine and fine roots; very strongly acid; gradual wavy boundary.
- C—28 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; very strongly acid.

# Mongo Series

The Mongo series consists of very deep, well drained soils on dissected lake plains. These soils formed in silty and clayey glaciolacustrine sediments. Permeability is very slow. Slopes range from 8 to 45 percent.

Typical pedon of Mongo silt loam, 8 to 45 percent slopes, dissected; 1,400 feet east and 2,350 feet south of the northwest corner of sec. 16, T. 46 N., R. 19 W., Au Train Township, Alger County, Michigan; USGS Munising, Michigan, topographic quadrangle; lat. 46 degrees 23 minutes 04 seconds N. and long. 86 degrees 41 minutes 40 seconds W., NAD 27:

- Oi—0 to 1 inch; partially decomposed plant material; many very fine to very coarse roots; abrupt smooth boundary.
- A—1 to 4 inches; very dark grayish brown (10YR 3/2) silt loam, light gray (10YR 7/1) dry; moderate medium granular structure; friable; many very fine to very coarse roots; very strongly acid; clear wavy boundary.
- A/E—4 to 6 inches; very dark grayish brown (10YR 3/2) silt loam (A), light gray (10YR 7/1) dry; light brownish gray (10YR 6/2) silt loam (E), pinkish gray (7.5YR 7/2) dry; moderate medium granular structure; friable; many very fine to very coarse roots; common very fine and fine vesicular pores; very strongly acid; clear wavy boundary.
- E/B—6 to 11 inches; light brown (7.5YR 6/4) silt loam (E), white (7.5YR 8/1) dry; occupies about 80 percent of the horizon; surrounding isolated remnants of reddish brown (5YR 5/4) silt loam (Bt); weak fine subangular blocky structure; friable; many very fine to very coarse roots; few very fine vesicular pores; strongly acid; clear wavy boundary.
- B/E—11 to 22 inches; reddish brown (2.5YR 4/4) silty clay loam (Bt); common distinct reddish brown (2.5YR 5/4) clay films on faces of peds and in root channels; occupies about 55 percent of the horizon; surrounding light reddish brown (5YR 6/3) silt loam, pinkish white (5YR 8/2) dry (E); moderate medium subangular blocky structure; firm; common very fine to very coarse roots; few very fine vesicular pores; strongly acid; gradual wavy boundary.
- Bt—22 to 38 inches; reddish brown (2.5YR 4/4) silty clay; weak coarse subangular blocky structure; firm; common distinct reddish brown (2.5YR 5/4) clay films on faces of peds and in root channels; few very fine and fine roots; slightly acid; gradual wavy boundary.
- C—38 to 80 inches; reddish brown (2.5YR 4/4) silt loam and stratified pinkish gray (5YR 6/2) silty clay loam and silt; massive; friable; slightly effervescent; slightly alkaline.

# **Munising Series**

The Munising series consists of very deep, moderately well drained soils on bedrock-controlled moraines. These soils are shallow or moderately deep to a fragipan (fig. 14). They formed in loamy till. Permeability is moderate in the upper part of the profile, very slow in the fragipan, and moderate below the fragipan. Slopes range from 1 to 15 percent.

Typical pedon of Munising loamy sand, 1 to 8 percent slopes; about 1,000 feet north and 1,100 feet east of the center of sec. 4, T. 51 N., R. 31 W., Arvon Township, Baraga County, Michigan; USGS Skanee South, Michigan, topographic quadrangle:

- Oe—0 to 1 inch; partially decomposed forest litter; many roots; very strongly acid; abrupt smooth boundary.
- A—1 to 2 inches; black (5YR 2/1) loamy sand, gray (5YR 5/1) dry; weak fine granular structure; friable; many roots; about 2 percent gravel; very strongly acid; abrupt smooth boundary.
- E—2 to 10 inches; pinkish gray (5YR 6/2) loamy sand; weak fine subangular blocky structure; friable; common roots; about 2 percent gravel; very strongly acid; abrupt wavy boundary.



Figure 14.—Profile of Munising fine sandy loam.
The fragipan is at a depth of about 24 inches.

- Bhs—10 to 14 inches; dark reddish brown (5YR 3/3) sandy loam; weak very coarse granular structure; friable with some strongly cemented tongues; many roots; about 2 percent gravel; very strongly acid; clear wavy boundary.
- Bs—14 to 22 inches; reddish brown (5YR 4/3) sandy loam; weak coarse subangular blocky structure; slightly hard when dry; friable; common roots; about 2 percent gravel; very strongly acid; clear wavy boundary.
- Bx—22 to 30 inches; reddish brown (2.5YR 4/4) loamy sand; weak thick platy structure; slightly hard and brittle when dry; firm; few roots; about 2 percent gravel; few fine faint yellowish red (5YR 4/6) masses of iron accumulation; very strongly acid; clear wavy boundary.
- Ex—30 to 41 inches; pinkish gray (5YR 6/2) loamy sand; few reddish brown (2.5YR 4/4) pieces that appear to be remnants of Bt material; massive; very hard and brittle; very firm; vesicular; about 2 percent gravel; strongly acid; abrupt irregular boundary.
- (B/E)x—41 to 49 inches; reddish brown (2.5YR 4/4) sandy loam (Bt); common vesicular pores; thin clay flows in pores; occupies about 80 percent of the horizon surrounded by tongues of pinkish gray (5YR 6/2) sandy loam (E); massive; very hard and brittle; very firm; about 2 percent gravel; very strongly acid; clear wavy boundary.
- Bt—49 to 63 inches; reddish brown (2.5YR 4/4) sandy loam; massive; friable; clay flows along vertical faces of peds and in pores; about 2 percent gravel; very strongly acid; gradual wavy boundary.
- C—63 to 83 inches; reddish brown (2.5YR 4/4) sandy loam; massive; friable; about 3 percent gravel; moderately acid.

### Nahma Series

The Nahma series consists of moderately deep, very poorly drained soils on ground moraines and in glacial drainage channels. These soils formed in loamy till overlying limestone and dolomitic sandstone bedrock. Permeability is moderate. Slopes range from 0 to 2 percent.

Typical pedon of Nahma muck, in an area of Nahma-Sundell complex; 600 feet north and 2,075 feet west of the southeast corner of sec. 35, T. 42 N., R. 25 W., Marquette County, Michigan; USGS La Branche, Michigan, topographic quadrangle; lat. 45 degrees 59 minutes 15 seconds N. and long. 87 degrees 23 minutes 46 seconds W.

- Oa1—0 to 7 inches; black (N 2.5/) muck; weak very fine granular structure; very friable; many very fine to coarse roots; about 1 percent gravel and 1 percent cobbles; neutral; clear smooth boundary.
- Oa2—7 to 11 inches; black (N 2.5/) muck; moderate medium granular structure; very friable; many very fine to coarse roots; about 1 percent gravel and 1 percent cobbles; neutral; abrupt smooth boundary.
- A—11 to 14 inches; very dark grayish brown (10YR 2/1) mucky loam, dark gray (10YR 4/1) dry; moderate medium granular structure; very friable; few very fine to medium roots; about 1 percent gravel and 2 percent cobbles; slightly alkaline; abrupt wavy boundary.
- Bg—14 to 17 inches; dark gray (10YR 4/1) loam; moderate medium platy structure; friable; few very fine to medium roots; common medium distinct brown (10YR 4/3) masses of iron accumulation; about 5 percent gravel and 2 percent cobbles; slightly alkaline; clear wavy boundary.
- Bw—17 to 19 inches; brown (10YR 4/3) loam; moderate medium platy structure; friable; few very fine to medium roots; few medium distinct dark grayish brown (10YR 4/2) iron depletions; few medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; about 5 percent gravel and 2 percent cobbles; slightly alkaline; clear wavy boundary.
- 2C—19 to 24 inches; brown (7.5YR 5/4) gravelly fine sandy loam; massive with weakly expressed medium platiness inherent from deposition; friable; few very fine to medium roots; common fine distinct dark grayish brown (10YR 4/2) iron depletions; many fine distinct strong brown (7.5YR 5/8) masses of iron accumulation; about 14 percent gravel and 3 percent cobbles; slightly effervescent; moderately alkaline; abrupt smooth boundary.
- 3R-24 inches; dolomitic sandstone bedrock.

#### Namur Series

The Namur series consists of very shallow, excessively drained soils in glacial drainage channels. These soils formed in loamy glaciofluvial deposits. Permeability is moderate. Slopes range from 0 to 2 percent.

Typical pedon of Namur silt loam, in an area of Namur-Ruse complex, 0 to 2 percent slopes, very rocky, very stony; 800 feet north and 700 feet west of the southeast corner of sec. 13, T. 44 N., R. 21 W., Mathias Township, Alger County, Michigan; USGS Lake Stella, Michigan, topographic quadrangle; lat. 46 degrees 12 minutes 14 seconds N. and long. 86 degrees 52 minutes 05 seconds W., NAD 27:

A—0 to 3 inches; black (10YR 2/1) silt loam, brown (7.5YR 5/2) dry; moderate fine granular structure; friable; many very fine and fine and few medium and coarse roots; about 10 percent gravel; slightly acid; clear broken boundary.

Bw—3 to 6 inches; dark brown (7.5YR 3/4) silt loam; weak medium subangular blocky structure; friable; many very fine and fine and few medium and coarse roots; about 10 percent gravel; slightly alkaline; abrupt smooth boundary. 2R—6 inches; fractured limestone bedrock.

# **Nykanen Series**

The Nykanen series consists of shallow, moderately well drained soils on eroded bedrock terraces in glacial drainage channels. These soils formed in a loamy mantle and in the underlying weathered dolomitic sandstone. Permeability is moderate. Slopes range from 1 to 45 percent.

Typical pedon of Nykanen very fine sandy loam, in an area of Ruse-Ensign-Nykanen complex, bedrock terrace, 1 to 20 percent slopes; about 600 feet north and 700 feet east of the southwest corner of sec. 27, T. 48 N., R. 17 W., Rock River Township, Alger County, Michigan; USGS Chatham, Michigan, topographic quadrangle; lat. 46 degrees 20 minutes 57 seconds N. and long. 86 degrees 55 minutes 34 seconds W., NAD 27:

- A—0 to 4 inches; very dark gray (10YR 3/1) very fine sandy loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; many very fine to very coarse roots; about 2 percent channers; very strongly acid; clear broken boundary.
- BA—4 to 14 inches; dark brown (7.5YR 3/4) and very dark gray (10YR 3/1) very fine sandy loam, brown (7.5YR 5/4) and gray (10YR 5/1) dry; moderate very fine subangular blocky structure; friable; common medium faint dark gray (10YR 4/1) worm casts on faces of peds; many very fine to medium roots; about 12 percent partially weathered dolomitic sandstone channers; strongly acid; gradual smooth boundary.
- 2Cr—14 to 25 inches; yellowish brown (10YR 5/4), weathered dolomitic sandstone; moderate very thick platy rock structure; friable to extremely firm; many very fine to fine roots in horizontal cracks; neutral; gradual smooth boundary.
- 2R—25 inches; yellowish brown (10YR 5/4) dolomitic sandstone; common very fine and fine roots in horizontal fractures in the upper 12 inches.

### Paavola Series

The Paavola series consists of very deep, moderately well drained soils on bedrock-controlled moraines. These soils are moderately deep to a fragipan (fig. 15). They formed in gravelly or cobbly sandy deposits over loamy till. Permeability is very rapid in the sandy part of the profile and very slow in the loamy part. Slopes range from 0 to 6 percent.

Typical pedon of Paavola gravelly coarse sandy loam, in an area of Trimountain-Paavola-Waiska complex, 1 to 8 percent slopes; about 250 feet south and 300 feet west of the northeast corner of sec. 15, T. 55 N., R. 33 W., Quincy Township, Houghton County, Michigan; USGS Hancock, Michigan, topographic quadrangle:

Oe—0 to 2 inches; partially decomposed forest litter.

- A—2 to 6 inches; dark reddish brown (5YR 2/2) gravelly coarse sandy loam, pinkish gray (5YR 6/2) dry; moderate medium granular structure; friable; many fine to coarse roots; about 22 percent gravel and 10 percent cobbles; strongly acid; clear smooth boundary.
- Bhs—6 to 15 inches; dark reddish brown (5YR 3/3) extremely gravelly loamy coarse sand; weak fine subangular blocky structure; very friable; many fine to coarse roots; about 55 percent gravel and 20 percent cobbles; strongly acid; clear wavy boundary.



Figure 15.—Profile of Paavola very gravelly loamy sand. The fragipan is at a depth of about 38 inches.

Bs1—15 to 21 inches; dark reddish brown (5YR 3/4) extremely gravelly coarse sand; weak fine subangular blocky structure; very friable; many fine and medium roots; about 42 percent gravel and 20 percent cobbles; moderately acid; clear wavy boundary.

Bs2—21 to 31 inches; dark brown (7.5YR 4/4) extremely gravelly coarse sand; weak fine subangular blocky structure; friable; few fine and medium roots; about 62 percent gravel and 5 percent cobbles; common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation; moderately acid; abrupt smooth boundary.

2(E/B)x—31 to 38 inches; dark reddish gray (5YR 4/2) gravelly loamy fine sand (E); occupies about 60 percent of the horizon; surrounding peds of reddish brown (5YR 4/4) gravelly fine sandy loam (Bt); weak thin platy structure; very firm; common fine vesicular pores; few faint reddish brown (5YR 4/3) clay films on faces of peds; about 12 percent gravel and 5 percent cobbles; common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; strongly acid; clear wavy boundary.

2Btx—38 to 59 inches; reddish brown (5YR 4/4) gravelly sandy loam; few fine prominent strong brown (7.5YR 4/6) mottles; weak medium platy structure; very firm; few very fine vesicular pores; few faint reddish brown (5YR 4/3) clay films on faces of peds; about 20 percent gravel and 5 percent cobbles; strongly acid; clear wavy boundary.

2Cd—59 to 80 inches; reddish brown (5YR 4/4) very gravelly sandy loam; weak thin platy fragments parting to weak fine subangular blocky fragments; firm; about 43 percent gravel and 5 percent cobbles; moderately acid.

# **Paquin Series**

The Paquin series consists of very deep, moderately well drained, sandy soils on outwash plains. These soils contain ortstein. Permeability is moderate or moderately rapid throughout the ortstein layers and rapid in the rest of the profile. Slopes range from 0 to 6 percent.

Typical pedon of Paquin sand, 0 to 6 percent slopes; 900 feet south and 75 feet east of the northwest corner of sec. 7, T. 44 N., R. 7 W., Hendricks Township, Mackinac County, Michigan; USGS Rexton, Michigan, topographic quadrangle:

- Oe—0 to 2 inches; partially decomposed forest litter.
- E—2 to 12 inches; brown (7.5YR 5/2) sand, pinkish gray (7.5YR 6/2) dry; weak medium subangular blocky structure; very friable; many fine to coarse roots; strongly acid; clear smooth boundary.
- Bhs—12 to 14 inches; very dark brown (7.5YR 2/2) sand; weak fine subangular blocky structure; very friable; many fine to coarse roots; strongly acid; clear wavy boundary.
- Bhsm—14 to 17 inches; very dark brown (7.5YR 2/2) sand; massive; very hard; ortstein occupies 100 percent of the horizon and is strongly cemented; ortstein occurs as a continuous layer with tongues that extend to a depth of 22 inches; few fine roots; strongly acid; clear irregular boundary.
- Bsm—17 to 27 inches; dark brown (7.5YR 3/4) sand; massive; very hard; ortstein occupies 100 percent of the horizon and is strongly cemented; ortstein occurs as a continuous layer with tongues that extend to a depth of 31 inches; strongly acid; clear irregular boundary.
- BC—27 to 34 inches; strong brown (7.5YR 4/6) sand; single grain; loose; common fine distinct strong brown (7.5YR 5/8) iron accumulations in the lower 2 inches; strongly acid; gradual wavy boundary.
- C—34 to 80 inches; yellowish brown (10YR 5/4) sand; single grain; loose; common coarse distinct strong brown (7.5YR 5/6) iron accumulations; moderately acid.

#### Reade Series

The Reade series consists of moderately deep, moderately well drained, moderately permeable soils on ground moraines. These soils formed in a silty or loamy eolian mantle and in loamy till overlying limestone, dolomite, or dolomitic sandstone (fig. 16). Slopes range from 0 to 6 percent.

Typical pedon of Reade silt loam, in an area of Shoepac-Reade silt loams, 1 to 4 percent slopes; 85 feet north and 1,013 feet west of the southeast corner of sec. 9, T. 43 N., R. 24 W., Turin Township, Marquette County, Michigan; USGS Helena, Michigan, topographic quadrangle; lat. 46 degrees 07 minutes 48.33 seconds N. and long. 87 degrees 18 minutes 29.94 seconds W., NAD 27:

- Oa—0 to 4 inches; well decomposed forest litter; weak fine granular structure; very friable; many very fine to coarse roots; extremely acid; abrupt smooth boundary.
- E—4 to 7 inches; brown (7.5YR 5/2) silt loam, light gray (7.5YR 7/1) dry; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 5 percent cobbles and 1 percent gravel; extremely acid; clear wavy boundary.
- Bhs—7 to 9 inches; dark brown (7.5YR 3/3) loam; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 5 percent cobbles and 3 percent gravel; very strongly acid; clear broken boundary.
- Bs1—9 to 12 inches; dark brown (7.5YR 3/4) fine sandy loam; weak fine subangular blocky structure; very friable; common fine and few medium roots; about 5 percent cobbles and 7 percent gravel; very strongly acid; gradual wavy boundary.



Figure 16.—Profile of Reade silt loam.

Limestone bedrock is at a depth of about 28 inches.

- Bs2—12 to 15 inches; brown (7.5YR 4/4) fine sandy loam; moderate fine and coarse subangular blocky structure; firm; few very fine and fine roots in cracks 10 to 20 inches apart; common fine vesicular pores; common fine and medium faint dark brown (7.5YR 3/3) masses of iron accumulation; about 5 percent cobbles and 1 percent gravel; strongly acid; clear broken boundary.
- B/E—15 to 20 inches; reddish brown (5YR 4/4) fine sandy loam (Bt); few faint dark reddish brown (5YR 3/3) clay films in root channels; occupies about 60 percent of the horizon; surrounded by reddish brown (5YR 5/3) loamy fine sand (E), pinkish gray (7.5YR 7/2) dry; moderate fine and medium subangular blocky structure; friable; few very fine and fine roots; common fine and medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; about 5 percent cobbles and 9 percent gravel; slightly alkaline; gradual wavy boundary.
- BC—20 to 28 inches; reddish brown (5YR 4/4) gravelly fine sandy loam; moderate fine and medium subangular blocky structure; friable; few very fine and fine roots; common fine and medium distinct yellowish red (5YR 4/6) masses of iron accumulation; about 5 percent cobbles and 12 percent gravel; moderately alkaline; abrupt smooth boundary.
- 2R—28 inches; grayish brown (2.5Y 5/2) dolomitic sandstone; few very fine and fine roots in a mat on top and in the upper 6 inches of crevices in the bedrock; many medium and coarse yellowish red (5YR 4/6) masses of iron accumulation on the surface of the bedrock.

# **Rhody Series**

The Rhody series consists of moderately deep, poorly drained soils on eroded bedrock terraces in glacial drainage channels. These soils formed in silty eolian deposits overlying sandy outwash. Permeability is moderate in the silty part of the profile and rapid in the sandy part. Slopes range from 0 to 2 percent.

Typical pedon of Rhody mucky silt loam, in an area of Rhody-Towes complex, 0 to 4 percent slopes; 150 feet south and 3,000 feet west of the northeast corner of sec. 14, T. 49 N., R. 14 W., Burt Township, Alger County, Michigan; USGS Grand Sable Lake, Michigan, topographic quadrangle; lat. 46 degrees 39 minutes 00 seconds N. and long. 86 degrees 01 minute 05 seconds W., NAD 27:

- A—0 to 10 inches; black (7.5YR 2.5/1) mucky silt loam, dark gray (7.5YR 4/1) dry; moderate fine granular structure; friable; many very fine to very coarse roots; moderately acid; clear smooth boundary.
- A/E—10 to 19 inches; very dark gray (2.5Y 3/1) and light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) and pale yellow (2.5Y 7/4) dry; weak thick platy structure; firm; few very fine to medium roots; common fine prominent pinkish gray (7.5YR 6/2) iron depletions; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid; gradual smooth boundary.
- 2C1—19 to 25 inches; olive brown (2.5Y 4/3) sand; single grain; loose; common medium distinct grayish brown (2.5Y 5/2) iron depletions; about 2 percent gravel; neutral; clear wavy boundary.
- 2C2—25 to 36 inches; olive gray (5Y 4/2) sand; single grain; loose; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; about 20 percent gravel; neutral; clear smooth boundary.
- 3Cr—36 to 41 inches; strong brown (7.5YR 5/6), weathered sandstone; massive; very firm; slightly alkaline; abrupt wavy boundary.
- 3R—41 inches; sandstone bedrock.

#### Rousseau Series

The Rousseau series consists of very deep, well drained, rapidly permeable soils on dunes. These soils formed in sandy glaciofluvial deposits. Slopes range from 0 to 70 percent.

Typical pedon of Rousseau fine sand, 0 to 6 percent slopes; 2,560 feet west and 200 feet south of the northeast corner of sec. 26, T. 43 N., R. 16 W., Hiawatha Township, Schoolcraft County, Michigan; USGS Hiawatha, Michigan, topographic quadrangle; lat. 46 degrees 05 minutes 57 seconds N. and long. 86 degrees 06 minutes 16 seconds W., NAD 27:

- Oi—0 to 1 inch; partially decomposed forest litter.
- E—1 to 4 inches; dark gray (10YR 4/1) fine sand, light brownish gray (10YR 6/2) dry; weak medium granular structure; very friable; many fine and common medium and coarse roots; strongly acid; clear irregular boundary.
- Bs1—4 to 9 inches; brown (7.5YR 4/4) fine sand; weak medium subangular blocky structure; very friable; common fine and few medium and coarse roots; strongly acid; clear wavy boundary.
- Bs2—9 to 20 inches; strong brown (7.5YR 4/6) fine sand; weak medium subangular blocky structure; very friable; few fine to coarse roots between columns of ortstein; columns of moderately cemented, strong brown (7.5YR 5/8), brown

- (7.5YR 4/4), and pinkish gray (7.5YR 6/2) ortstein 3 to 10 inches wide extend into the BC horizon; ortstein columns are 3 to 20 inches apart; ortstein occupies 30 percent of the horizon; strongly acid; clear wavy boundary.
- BC—20 to 33 inches; light yellowish brown (10YR 6/4) fine sand; weak fine granular structure; very friable; few fine roots between columns of ortstein; columns of moderately cemented, strong brown (7.5YR 5/8), brown (7.5YR 4/4), and pinkish gray (7.5YR 6/2) ortstein 3 to 14 inches wide extend into this horizon from the Bs2 horizon; ortstein columns are 3 to 10 inches apart; ortstein occupies 30 percent of horizon; strongly acid; clear wavy boundary.
- C1—33 to 66 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; few thin discontinuous strong brown (7.5YR 4/6) depositional bands <sup>1</sup>/<sub>16</sub> to <sup>1</sup>/<sub>8</sub> inch thick; about 1 percent fine gravel; moderately acid; clear wavy boundary.
- C2—66 to 80 inches; yellowish brown (10YR 5/4) sand; single grain; loose; about 1 percent fine gravel; moderately acid.

## **Rubicon Series**

The Rubicon series consists of very deep, excessively drained soils on outwash plains. These soils formed in sandy glaciofluvial deposits. Permeability is rapid. Slopes range from 0 to 35 percent.

Typical pedon of Rubicon sand, 0 to 6 percent slopes; 1,914 feet east and 1,320 feet south of the northwest corner of sec. 1, T. 42 N., R. 16 W., Hiawatha Township, Schoolcraft County, Michigan; USGS Hiawatha, Michigan, topographic quadrangle; lat. 46 degrees 04 minutes 02 seconds N. and long. 86 degrees 15 minutes 15 seconds W., NAD 27:

- Oi—0 to 2 inches; undecomposed forest litter.
- E—2 to 5 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/1) dry; weak medium granular structure; very friable; many fine and few medium roots; about 1 percent fine gravel; strongly acid; clear irregular boundary.
- Bs1—5 to 10 inches; dark brown (7.5YR 3/4) sand; weak medium granular structure; very friable; common fine and few medium roots; about 1 percent fine gravel; strongly acid; clear wavy boundary.
- Bs2—10 to 20 inches; strong brown (7.5YR 4/6) sand; weak medium granular structure; very friable; common fine and few medium roots; about 1 percent fine gravel; strongly acid; clear wavy boundary.
- Bs3—20 to 30 inches; strong brown (7.5YR 5/6) sand; single grain; loose; few fine roots between ortstein columns; columns of weakly cemented, dark reddish brown (5YR 3/3) and yellowish brown (10YR 5/6) ortstein 1 to 3 inches wide extend into the BC horizon; ortstein columns are 5 to 20 inches apart; ortstein occupies 15 percent of the horizon; about 1 percent fine gravel; moderately acid; clear irregular boundary.
- BC—30 to 38 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few fine roots between ortstein columns; columns of weakly cemented, dark reddish brown (5YR 3/3) and yellowish brown (10YR 5/6) ortstein 1 to 3 inches wide extend into this horizon from the Bs3 horizon; ortstein columns are 5 to 30 inches apart; ortstein occupies 10 percent of the horizon; about 3 percent fine gravel; moderately acid; gradual wavy boundary.
- C1—38 to 48 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; about 3 percent fine gravel; slightly acid; gradual wavy boundary.
- C2—48 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; about 3 percent fine gravel; slightly acid.

### Ruse Series

The Ruse series consists of shallow, poorly drained soils in glacial drainage channels and on ground moraines. These soils formed in loamy till overlying limestone bedrock. Permeability is moderate. Slopes range from 0 to 6 percent. Typical pedon of Ruse mucky loam; 2,000 feet east and 1,500 feet south of the northwest corner of sec. 19, T. 43 N., R. 10 W., Garfield Township, Mackinac County, Michigan; USGS Engadine, Michigan, topographic quadrangle; NAD 27:

- A—0 to 7 inches; black (10YR 2/1) mucky loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many fine to coarse roots; neutral; abrupt smooth boundary.
- Bg—7 to 11 inches; grayish brown (10YR 5/2) sandy loam; weak medium subangular blocky structure; friable; common fine to coarse roots; many fine faint gray (10YR 6/1) iron depletions throughout; slightly alkaline; abrupt smooth boundary.
- Bw—11 to 15 inches; pale brown (10YR 6/3) sandy loam; weak thick platy structure; friable; few fine roots; common fine prominent yellowish brown (7.5YR 5/6) masses of iron accumulation and common fine distinct light brownish gray (2.5Y 6/2) masses of iron depletion throughout; slightly alkaline; abrupt smooth boundary.
- 2R—15 inches; fractured limestone bedrock.

## Sauxhead Series

The Sauxhead series consists of shallow, moderately well drained, very rapidly permeable soils on bedrock-controlled moraines. These soils formed in sandy and channery glaciofluvial deposits overlying sandstone bedrock. Slopes range from 0 to 6 percent.

Typical pedon of Sauxhead sandy loam, in an area of Sauxhead-Jacobsville complex, 0 to 6 percent slopes, very stony; 1,200 feet west and 1,400 feet south of the northeast corner of sec. 10, T. 49 N., R. 26 W., Marquette Township, Marquette County, Michigan; USGS Buckroe, Michigan, topographic quadrangle; lat. 46 degrees 39 minutes 52 seconds N. and long. 87 degrees 39 minutes 05 seconds W., NAD 27:

- Oa—0 to 1 inch; well decomposed forest litter; moderate fine granular structure; very friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.
- E—1 to 4 inches; dark reddish gray (5YR 4/2) sandy loam, pinkish gray (5YR 6/2) dry; weak medium subangular blocky structure; friable; many very fine to coarse roots; about 3 percent gravel and 3 percent channers; strongly acid; clear wavy boundary.
- 2Bw—4 to 14 inches; reddish brown (2.5YR 4/4) very channery loamy sand; weak medium subangular blocky structure; very friable; many very fine to coarse roots; strongly acid; about 50 percent sandstone channers and 5 percent gravel; clear wavy boundary.
- 3Cr—14 to 17 inches; dark reddish brown (2.5YR 3/4), highly weathered and fractured sandstone; reddish brown (2.5YR 4/4) loamy sand in root channels and cracks; few very fine and fine roots in cracks and crevices; very strongly acid; abrupt wavy boundary.
- 3R—17 inches; reddish brown (2.5YR 4/4) sandstone bedrock; common medium prominent light brownish gray (10YR 6/2) iron depletions on the surface of the bedrock; common medium prominent reddish yellow (7.5YR 6/8) masses of iron accumulation on the surface of the bedrock.

### Shelldrake Series

The Shelldrake series consists of very deep, excessively drained soils on beach ridges and dunes. These soils formed in sandy beach and dune deposits. Permeability is rapid. Slopes range from 0 to 75 percent.

Typical pedon of Shelldrake sand, 0 to 8 percent slopes; 1,300 feet west and 1,400 feet north of the southeast corner of sec. 25, T. 48 N., R. 18 W., Munising Township, Alger County, Michigan; USGS Grand Portal Point, Michigan, topographic quadrangle; lat. 46 degrees 31 minutes 27 seconds N. and long. 86 degrees 29 minutes 38 seconds W., NAD 27:

- Oe—0 to 1 inch; slightly decomposed forest litter.
- Oa—1 to 3 inches; black (N 2.5/), well decomposed forest litter; weak very fine subangular blocky structure; very friable; many very fine to very coarse roots; extremely acid; clear smooth boundary.
- A—3 to 4 inches; very dark grayish brown (10YR 2/2) sand, light brownish gray (10YR 6/2) dry; single grain; loose; many very fine to very coarse roots; about 40 percent clean sand grains; extremely acid; clear smooth boundary.
- C—4 to 80 inches; very pale brown (10YR 7/3) sand; single grain; loose; common very fine and medium roots; few prominent dark yellowish brown (10YR 4/2) organic stains; extremely acid.

# Shingleton Series

The Shingleton series consists of shallow, somewhat excessively drained soils on kame terraces overlying bedrock benches. These soils formed in sandy glaciofluvial deposits. Permeability is rapid. Slopes range from 1 to 70 percent.

Typical pedon of Shingleton loamy sand, in an area of Furlong-Shingleton loamy sands, 1 to 6 percent slopes; 1,320 feet north and 660 feet east of the southwest corner of sec. 22, T. 40 N., R. 17 W., Thompson Township, Schoolcraft County, Michigan; USGS Hiram Point, Michigan, topographic quadrangle; lat. 45 degrees 50 minutes 35.7 seconds N. and long. 86 degrees 23 minutes 39.2 seconds W., NAD 27:

- A—0 to 1 inch; very dark gray (7.5YR 3/1) loamy sand, dark gray (7.5YR 4/1) dry; weak fine granular structure; very friable; common fine and medium roots; about 1 percent fine gravel; strongly acid; abrupt wavy boundary.
- E—1 to 7 inches; brown (7.5YR 5/2) loamy sand, light gray (7.5YR 5/2) dry; weak medium subangular blocky structure; very friable; few fine and common roots; about 1 percent fine gravel; very strongly acid; clear irregular boundary.
- Bhs—7 to 8 inches; dark reddish brown (5YR 3/2) loamy sand; weak medium subangular blocky structure; very friable; many fine, common medium, and few coarse roots; about 1 percent fine gravel; very strongly acid; abrupt broken boundary.
- Bs—8 to 11 inches; dark reddish brown (5YR 3/4) loamy sand; weak medium subangular blocky structure; very friable; few fine to coarse roots; about 1 percent fine gravel; strongly acid; abrupt smooth boundary.
- 2R—11 inches; limestone bedrock.

# Shoepac Series

The Shoepac series consists of very deep, moderately well drained soils on ground moraines. These soils formed in a silty or loamy eolian mantle overlying loamy till. Permeability is moderate in the solum and moderately slow in the substratum. Slopes range from 1 to 6 percent.

Typical pedon of Shoepac silt loam, in an area of Shoepac-Trenary silt loams, 1 to 6 percent slopes; 2,300 feet north and 2,100 feet east of the southwest corner of sec. 24, T. 44 N., R. 23 W., Turin Township, Marquette County, Michigan; USGS McFarland topographic quadrangle; lat. 46 degrees 11 minutes 39 seconds N. and long. 87 degrees 07 minutes 46 seconds W., NAD 27:

- Oa—0 to 2 inches; well decomposed forest litter; very friable; many very fine to coarse roots; extremely acid; abrupt smooth boundary.
- E—2 to 6 inches; reddish brown (5YR 5/3) silt loam, pinkish gray (7.5YR 7/2) dry; moderate fine subangular blocky structure; friable; many very fine to coarse roots; 2 percent cobbles and 1 percent gravel; very strongly acid; clear broken boundary.
- Bs1—6 to 12 inches; brown (7.5YR 4/4) fine sandy loam; moderate fine subangular blocky structure; friable; many very fine to coarse roots; 2 percent cobbles and 1 percent gravel; strongly acid; gradual wavy boundary.
- Bs2—12 to 23 inches; strong brown (7.5YR 4/6) loamy sand; weak thick platy structure parting to weak fine subangular blocky; friable; many very fine to coarse roots; 12 percent gravel and 2 percent cobbles; strongly acid; gradual wavy boundary.
- 2E/B—23 to 33 inches; reddish brown (5YR 5/3) loamy sand, pinkish gray (5YR 6/2) dry (E); occupies about 75 percent of the horizon; occurs as tongues extending into or completely surrounding isolated remnants of reddish brown (2.5YR 4/4) fine sandy loam (Bt); weak medium subangular blocky structure; firm; few very fine to medium roots; common medium distinct yellowish red (5YR 5/6) masses of iron accumulation; 3 percent gravel and 2 percent cobbles; strongly acid; gradual irregular boundary.
- 2Bt—33 to 53 inches; reddish brown (2.5YR 4/4) fine sandy loam; weak coarse subangular blocky structure parting to weak medium subangular blocky; firm; few very fine and fine roots; common distinct reddish brown (2.5YR 4/3) clay films on faces of peds and in root channels; 7 percent gravel and 2 percent cobbles; moderately acid; gradual wavy boundary.
- 2C—53 to 80 inches; reddish brown (2.5YR 4/4) gravelly fine sandy loam; massive with weakly expressed thin plates inherited from the parent material; friable; few very fine and fine roots; 22 percent gravel and 4 percent cobbles; slightly effervescent; slightly alkaline.

## Skandia Series

The Skandia series consists of very poorly drained soils in depressions and drainageways on bedrock-controlled moraines. These soils formed in organic deposits overlying sandstone bedrock. Permeability is moderately slow to moderately rapid. Slopes are 0 to 1 percent.

Typical pedon of Skandia mucky peat; 330 feet south and 2,475 feet east of the northwest corner of sec. 20, T. 51 N., R. 26 W., Powell Township, Marquette County, Michigan; USGS Big Bay, Michigan, topographic quadrangle; lat. 46 degrees 48 minutes 18 seconds N. and long. 87 degrees 37 minutes 53 seconds W., NAD 27:

- Oe—0 to 4 inches; mucky peat, dark grayish brown (10YR 4/2) broken face and pressed, very dark grayish brown (10YR 3/2) rubbed; about 80 percent fiber, 40 percent rubbed; weak medium platy structure; primarily sphagnum moss fibers; many very fine to coarse roots; extremely acid; clear smooth boundary.
- Oa—4 to 26 inches; muck, black (10YR 2/1) broken face, rubbed, and pressed; about 10 percent fiber, 2 percent rubbed; weak medium subangular blocky structure; primarily herbaceous fibers; many very fine to coarse roots; extremely acid; abrupt smooth boundary.

2Cr—26 to 31 inches; dark reddish brown (2.5YR 3/4), weathered sandstone bedrock; massive; firm; extremely acid; clear wavy boundary. 2R—31 inches; dusky red (2.5YR 3/2) sandstone bedrock.

### Skanee Series

The Skanee series consists of very deep, somewhat poorly drained soils on bedrock-controlled moraines. These soils are shallow to a fragipan. They formed in loamy till. Permeability is moderate in the upper part of the profile, very slow in the fragipan, and moderate below the fragipan. Slopes range from 0 to 6 percent.

Typical pedon of Skanee fine sandy loam, in an area of Munising-Skanee complex, 0 to 8 percent slopes; 2,700 feet west and 100 feet south of the northeast corner of sec. 34, T. 52 N., R. 36 W., Elm River Township, Houghton County, Michigan; USGS Nisula, Michigan, topographic quadrangle:

- Oa—0 to 2 inches; well decomposed forest litter; many roots; abrupt smooth boundary.
- E—2 to 8 inches; pinkish gray (5YR 6/2) fine sandy loam; moderate medium subangular blocky structure; friable; few roots; few fine faint reddish gray (5YR 5/2) iron depletions; about 3 percent gravel; very strongly acid; abrupt smooth boundary.
- Bhs—8 to 14 inches; dark reddish brown (5YR 3/3) fine sandy loam; moderate medium subangular blocky structure; friable; few roots; few medium faint dark reddish brown (5YR 3/4) masses of iron accumulation; about 3 percent gravel; very strongly acid; abrupt smooth boundary.
- (E/B)x—14 to 31 inches; reddish brown (5YR 5/3) fine sandy loam (E); occupies about 60 percent of the horizon and surrounds reddish brown (5YR 4/4) fine sandy loam (Bt); massive; very firm; common clay films on faces of peds; about 3 percent gravel; few fine distinct yellowish red (5YR 5/6) masses of iron accumulation; strongly acid; clear smooth boundary.
- Bt—31 to 42 inches; reddish brown (2.5YR 4/4) sandy clay loam; massive; friable; common clay films on faces of peds; about 3 percent gravel; moderately acid; clear smooth boundary.
- C—42 to 80 inches; reddish brown (2.5YR 4/4) sandy loam; massive; about 3 percent gravel; moderately acid.

# Spot Series

The Spot series consists of very deep, poorly drained, sandy soils on outwash plains. These soils contain ortstein. Permeability is moderate or moderately rapid in the ortstein layer and rapid in the rest of the profile. Slopes range from 0 to 2 percent.

Typical pedon of Spot peat, in an area of Croswell-Spot complex, 0 to 6 percent slopes; 1,550 feet west and 600 feet north of the southeast corner of sec. 27, T. 44 N., R. 9 W., Garfield Township, Mackinac County, Michigan; USGS Gilchrist, Michigan, topographic quadrangle:

- Oi-0 to 1 inch; very dark brown (10YR 2/2) peat.
- Oa—1 to 2 inches; muck, black (N 2/) broken face and rubbed; moderate medium granular structure; friable; many fine to coarse roots; very strongly acid; abrupt smooth boundary.
- E—2 to 8 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/1) dry; weak medium subangular blocky structure; friable; common fine and medium roots; common fine prominent strong brown (7.5YR 5/6) iron accumulations; very strongly acid; clear wavy boundary.

- Bhsm—8 to 10 inches; dark reddish brown (5YR 3/3 and 3/2) sand; massive; very hard; ortstein occupies 90 percent of the horizon and is strongly cemented; ortstein occurs as a nearly continuous layer and as tongues that extend to a depth of 20 inches; common fine and medium roots; very strongly acid; clear irregular boundary.
- Bs1—10 to 12 inches; dark brown (7.5YR 4/4) sand; weak fine subangular blocky structure; friable; ortstein occupies 70 percent of the horizon and is moderately cemented; dark brown (7.5YR 4/4) ortstein occurs as a nearly continuous layer with tongues extending to a depth of 22 inches; strongly acid; clear irregular boundary.
- Bs2—12 to 18 inches; strong brown (7.5YR 4/6) sand; weak fine subangular blocky structure; friable; ortstein occupies 30 percent of the horizon and is weakly cemented; strong brown (7.5YR 4/4) ortstein occurs as tongues 2 to 6 inches wide extending to a depth of 25 inches; ortstein tongues are 16 to 30 inches apart; strongly acid; gradual wavy boundary.
- C1—18 to 41 inches; light brown (7.5YR 6/4) sand; single grain; loose; strongly acid; gradual wavy boundary.
- C2—41 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; moderately acid.

### Steuben Series

The Steuben series consists of very deep, well drained soils on ground moraines and disintegration moraines. These soils are shallow or moderately deep to a fragipan. They formed in loamy till over sandy outwash. Permeability is moderate above the fragipan, slow in the fragipan, and rapid in the sandy substratum. Slopes range from 1 to 60 percent.

Typical pedon of Steuben fine sandy loam, in an area of Steuben-Blue Lake-Kalkaska complex, 6 to 15 percent slopes; 1,000 feet north and 200 feet east of the southwest corner of sec. 8, T. 45 N., R. 20 W., Au Train Township, Alger County, Michigan; USGS Forest Lake, Michigan, topographic quadrangle:

- Oe—0 to 2 inches; moderately decomposed leaf litter; very friable; many roots; very strongly acid; abrupt smooth boundary.
- E—2 to 8 inches; reddish gray (5YR 5/2) fine sandy loam; weak very thick platy structure; friable; very strongly acid; abrupt wavy boundary.
- Bhs1—8 to 11 inches; dark reddish brown (5YR 2/2) fine sandy loam; weak medium and coarse subangular blocky structure; friable; very strongly acid; clear wavy boundary.
- Bhs2—11 to 16 inches; dark reddish brown (5YR 3/3) fine sandy loam; weak medium and coarse subangular blocky structure; friable; very strongly acid; gradual wavy boundary.
- Bs—16 to 21 inches; dark brown (7.5YR 4/4) fine sandy loam; weak medium and coarse subangular blocky structure; friable; strongly acid; abrupt smooth boundary.
- (B/E)x—21 to 40 inches; reddish brown (2.5YR 4/4) fine sandy loam (Bt); few thin clay films; occupies about 60 percent of horizon; surrounded by pinkish gray (5YR 6/2 and 7/2) loamy fine sand (E); weak very thick platy structure; vesicular; hard, brittle, and firm; strongly acid; abrupt smooth boundary.
- 2E and Bt—40 to 45 inches; light reddish brown (7.5YR 6/4) sand, pink (7.5YR 8/4) dry; single grain; loose; few lamellae of reddish brown (5YR 4/4) loamy sand (Bt); weak thin platy structure; very friable; lamellae are 1/16 to 1/4 inch thick; strongly acid; abrupt wavy boundary.

2C—45 to 80 inches; reddish brown (7.5YR 5/4) sand and coarse sand; single grain; loose; moderately acid.

# Sturgeon Series

The Sturgeon series consists of very deep, somewhat poorly drained soils on flood plains. These soils formed in silty alluvium over sandy alluvium. Permeability is moderate in the silty part of the profile and rapid in the sandy part. Slopes range from 0 to 2 percent.

Typical pedon of Sturgeon silt loam, in an area of Evart-Sturgeon silt loams, 0 to 2 percent slopes, frequently flooded; 1,100 feet south and 40 feet east of the northwest corner of sec. 31, T. 44 N., R. 19 W., Au Train Township, Alger County, Michigan; USGS Tie Lake topographic quadrangle; lat. 46 degrees 10 minutes 12 seconds N. and long. 86 degrees 44 minutes 20 seconds W., NAD 27:

- A—0 to 6 inches; dark brown (7.5YR 3/2) silt loam, brown (7.5YR 5/2) dry; moderate fine subangular blocky structure parting to moderate fine granular; friable; many very fine to medium and few coarse roots; moderately acid; clear wavy boundary.
- Bw—6 to 16 inches; strong brown (7.5YR 5/8) silt loam; weak fine subangular blocky structure; friable; common very fine to medium roots; common fine vesicular pores; common prominent very dark gray (2.5Y 3/1) organic stains; common medium distinct brown (10YR 4/3) masses of iron accumulation; moderately acid; abrupt wavy boundary.
- 2C1—16 to 22 inches; yellowish brown (10YR 5/4) loamy fine sand; single grain; loose; common woody fragments 2 millimeters to 4 inches thick; thin discontinuous black (2.5Y 2.5/1) organic material; moderately acid; gradual wavy boundary.
- 2C2—22 to 80 inches; dark grayish brown (2.5Y 4/2) fine sand; single grain; loose; common woody fragments 2 millimeters to 4 inches thick; slightly acid.

#### Stutts Series

The Stutts series consists of very deep, somewhat excessively drained soils on outwash plains. These soils formed in a loamy eolian mantle overlying sandy outwash (fig. 17). Permeability is moderately rapid in the loamy part of the profile and rapid in the sandy lower part. Slopes range from 0 to 35 percent.

Typical pedon of Stutts sandy loam, in an area of Stutts-Kalkaska complex, 0 to 6 percent slopes; 1,400 feet east and 500 feet north of the southwest corner of sec. 35, T. 44 N., R. 19 W., Munising Township, Alger County, Michigan; USGS Tie Lake, Michigan, topographic quadrangle; lat. 46 degrees 09 minutes 37 seconds N. and long. 86 degrees 39 minutes 02 seconds W., NAD 27:

- Oa—0 to 1 inch; well decomposed forest litter.
- A—1 to 2 inches; very dark brown (7.5YR 2.5/2) sandy loam, dark gray (10YR 4/1) dry; moderate fine granular structure; friable; many very fine to coarse roots; few very fine vesicular pores; very strongly acid; abrupt broken boundary.
- E—2 to 7 inches; reddish gray (5YR 5/2) sandy loam, light gray (5YR 7/1) dry; moderate fine and very fine subangular blocky structure; friable; many very fine to coarse roots; few very fine vesicular pores; very strongly acid; abrupt wavy boundary.
- Bhs—7 to 9 inches; dark reddish brown (5YR 3/2) sandy loam; moderate fine subangular blocky structure; friable; many very fine to coarse roots; few very fine vesicular pores; very strongly acid; clear wavy boundary.



Figure 17.—Profile of Stutts sandy loam. Depth is marked in inches.

- Bs1—9 to 13 inches; dark brown (7.5YR 3/4) sandy loam; moderate fine subangular blocky structure; friable; many very fine to medium and few coarse roots; strongly acid; clear wavy boundary.
- Bs2—13 to 19 inches; strong brown (7.5YR 4/6) sandy loam; weak fine and medium subangular blocky structure; friable; about 1 percent gravel; many fine and medium and few coarse roots; strongly acid; gradual wavy boundary.
- 2BC—19 to 33 inches; light brown (10YR 6/4) sand; single grain; loose; few very fine and fine roots; strongly acid; gradual wavy boundary.
- 2C—33 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; about 4 percent gravel; moderately acid.

### Sultz Series

The Sultz series consists of very deep, well drained soils on outwash plains. These soils formed in sandy glaciofluvial deposits underlain by stratified loamy lacustrine material. Permeability is rapid in the sandy upper part of the profile and moderately slow to moderately rapid in the loamy lower part. Slopes range from 0 to 15 percent.

Typical pedon of Sultz fine sand, in an area of Rubicon-Sultz complex, 0 to 6 percent slopes; 1,300 feet west and 1,600 feet south of the northeast corner of sec. 18, T. 42 N., R. 17 W., Inwood Township, Schoolcraft County, Michigan; USGS Thunder Lake, Michigan, topographic quadrangle; lat. 46 degrees 02 minutes 12 seconds N. and long. 86 degrees 28 minutes 27 seconds W., NAD 27:

- Oi—0 to 1 inch; slightly decomposed organic material.
- A—1 to 2 inches; black (7.5YR 2.5/1) fine sand, dark gray (7.5YR/4/1) dry; weak very fine granular structure; very friable; many fine and common medium and coarse roots; extremely acid; abrupt wavy boundary.
- E—2 to 6 inches; light brown (7.5YR 6/3) fine sand, pinkish gray (7.5YR 7/2) dry; weak medium subangular blocky structure; very friable; many fine and common medium and coarse roots; extremely acid; clear irregular boundary.
- Bs1—6 to 11 inches; reddish brown (5YR 4/4) fine sand; weak medium subangular blocky structure; very friable; common fine and medium roots; about 18 percent of the horizon is moderately cemented ortstein; strongly acid; clear wavy boundary.
- Bs2—11 to 18 inches; strong brown (7.5YR 5/6) fine sand; weak medium subangular blocky structure; very friable; few fine roots; about 18 percent of the horizon is moderately cemented ortstein; strongly acid; clear wavy boundary.
- BC—18 to 43 inches; brown (7.5YR 5/4) fine sand; weak coarse subangular blocky structure; very friable; few fine roots; moderately acid; abrupt wavy boundary.
- C1—43 to 51 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; moderately acid; abrupt wavy boundary.
- 2C2—51 to 58 inches; stratified reddish brown (5YR 5/4) silt loam and brown (7.5YR 5/4) fine sand; massive with moderately expressed thick platiness inherent from deposition; friable; common very fine and fine vesicular pores; strongly acid; abrupt wavy boundary.
- 2C3—58 to 80 inches; stratified reddish brown (5YR 5/4) silt loam and brown (7.5YR 5/4) loamy very fine sand; massive with weakly expressed thin platiness inherent from deposition; friable and very friable; strongly acid.

#### Summerville Series

The Summerville series consists of shallow, well drained soils on ground moraines. These soils formed in loamy till overlying limestone, dolomite, or dolomitic sandstone bedrock. Permeability is moderate. Slopes range from 1 to 45 percent.

Typical pedon of Summerville loam, in an area of Summerville-Rock outcrop complex, 1 to 15 percent slopes; 2,800 feet east and 400 feet south of the northwest corner of sec. 28, T. 42 N., R. 6 E., Drummond Township, Chippewa County, Michigan; USGS Meade Island, Michigan, topographic quadrangle:

- A—0 to 3 inches; very dark grayish brown (10YR 3/2) loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; very friable; many very fine to medium roots; slightly acid; abrupt wavy boundary.
- Bw1—3 to 9 inches; dark yellowish brown (10YR 4/4) very fine sandy loam; moderate fine angular blocky structure; very friable; common fine and medium roots; moderately acid; clear wavy boundary.
- Bw2—9 to 13 inches; dark yellowish brown (10YR 4/6) very fine sandy loam; moderate fine angular blocky structure; very friable; common fine and medium roots; moderately acid; abrupt smooth boundary.
- 2R—13 inches; limestone bedrock.

### Tawas Series

The Tawas series consists of very deep, very poorly drained soils in depressions and drainageways on outwash plains, ground moraines, and disintegration moraines. These soils formed in organic material 16 to 50 inches thick overlying sandy deposits. Permeability is moderately slow to moderately rapid in the organic material and rapid in the sandy material. Slopes range from 0 to 2 percent.

Typical pedon of Tawas mucky peat, in an area of Carbondale, Lupton, and Tawas soils; 1,500 feet north and 1,200 feet west of the southeast corner of sec. 4, T. 49 N., R. 13 W., Burt Township, Alger County, Michigan; USGS Grand Marais, Michigan, topographic quadrangle; lat. 46 degrees 39 minutes 52.29 seconds N. and long. 85 degrees 55 minutes 44.10 seconds W., NAD 27:

- Oe—0 to 2 inches; dark brown (7.5YR 3/3) mucky peat; about 80 percent fiber, 35 percent rubbed; weak thin platy structure; very friable; many very fine to coarse roots; very strongly acid; clear smooth boundary.
- Oa1—2 to 9 inches; black (10YR 2/1) muck; about 25 percent fiber, 5 percent rubbed; weak thick platy structure; very friable; few very fine to coarse roots; common woody fragments 2 millimeters to 10 inches thick throughout; strongly acid; gradual smooth boundary.
- Oa2—9 to 23 inches; dark grayish brown (10YR 3/2) muck; about 15 percent fiber, 5 percent rubbed; massive; very friable; common woody fragments 2 millimeters to 10 inches thick throughout; strongly acid; abrupt smooth boundary.
- 2C—23 to 80 inches; brown (10YR 5/3) sand; single grain; loose; moderately acid.

### Tokiahok Series

The Tokiahok series consists of very deep, well drained soils on bedrock-controlled moraines. These soils formed in sandy outwash over loamy till. They are moderately deep to a fragipan. Permeability is rapid in the sandy part of the profile, very slow in the fragipan, and moderate below the fragipan. Slopes range from 8 to 70 percent.

Typical pedon of Tokiahok loamy fine sand, in an area of Frohling-Tokiahok complex, 8 to 35 percent slopes, dissected, very stony; 250 feet south and 2,112 feet east of the northwest corner of sec. 31, T. 52 N., R. 29 W., Powell Township, Marquette County, Michigan; USGS McComb Corner, Michigan, topographic quadrangle; lat. 46 degrees 51 minutes 27 seconds N. and long. 88 degrees 22 minutes 22 seconds W., NAD 27:

- Oa—0 to 2 inches; well decomposed forest litter; weak fine granular structure; very friable; many fine and common medium roots; very strongly acid; abrupt smooth boundary.
- E—2 to 11 inches; reddish gray (5YR 5/2) loamy fine sand, pinkish gray (5YR 7/2) dry; weak fine subangular blocky structure; very friable; many fine and common medium roots; about 5 percent gravel; very strongly acid; clear wavy boundary.
- Bhs—11 to 15 inches; dark reddish brown (5YR 3/3) loamy fine sand; weak fine subangular blocky structure; friable; many fine and common medium roots; discontinuous tongues of dark reddish brown (5YR 3/3) and reddish brown (5YR 4/4) moderately cemented ortstein occupy 20 percent (8 of 40 inches) of the horizon; tongues are 2 to 4 inches wide and 8 to 22 inches apart and extend into the Bs horizon; about 5 percent gravel and 1 percent cobbles; strongly acid; clear irregular boundary.
- Bs—15 to 24 inches; brown (7.5YR 4/4) loamy fine sand; weak fine subangular blocky structure; very friable; few fine and medium roots; ortstein occupies 10

- percent (4 of 40 inches) of the horizon and extends to a depth of 24 inches; about 5 percent gravel and 1 percent cobbles; strongly acid; gradual wavy boundary.
- 2Bx—24 to 30 inches; strong brown (7.5YR 4/6) fine sandy loam; moderate medium subangular blocky structure; very firm; very few fine and medium roots in cracks 10 to 20 inches apart; common very fine and fine vesicular pores; about 10 percent gravel and 2 percent cobbles; moderately acid; clear wavy boundary.
- 2(E/B)x—30 to 41 inches; reddish brown (5YR 5/3) loamy sand, pinkish gray (5YR 7/2) dry (E); occupies about 80 percent of the horizon; surrounding isolated remnants of reddish brown (2.5YR 4/4) sandy loam (Bt); weak medium platy structure parting to weak very fine subangular blocky; very firm; very few fine roots in cracks 10 to 20 inches apart; common very fine and fine vesicular pores; about 5 percent gravel and 2 percent cobbles; moderately acid; gradual wavy boundary.
- 2(B/E)x—41 to 49 inches; reddish brown (2.5YR 4/4) sandy loam (Bt); few distinct dusky red (2.5YR 3/2) clay films on faces of peds; occupies about 80 percent of the horizon; surrounding peds of reddish brown (5YR 5/3) loamy sand, pinkish gray (5YR 7/2) dry (E); weak medium platy structure parting to weak very fine subangular blocky; very firm; very few fine roots in cracks 10 to 20 inches apart; common very fine and fine vesicular pores; about 5 percent gravel and 2 percent cobbles; slightly acid; clear smooth boundary.
- 2Btx—49 to 59 inches; dark reddish brown (2.5YR 3/4) sandy loam; weak medium platy structure parting to weak very fine subangular blocky; very firm; common very fine and fine vesicular pores; common distinct dusky red (2.5YR 3/2) clay films on faces of peds; about 5 percent gravel and 2 percent cobbles; slightly acid; gradual wavy boundary.
- 2BC—59 to 66 inches; reddish brown (2.5YR 4/4) sandy loam; weak fine subangular blocky structure; friable; about 5 percent gravel and 2 percent cobbles; slightly acid; gradual wavy boundary.
- 2C—66 to 80 inches; reddish brown (2.5YR 4/4) sandy loam; massive; friable; about 10 percent gravel and 2 percent cobbles; slightly acid.

### **Towes Series**

The Towes series consists of moderately deep, somewhat poorly drained soils on eroded bedrock terraces in glacial drainage channels. These soils formed in silty eolian deposits overlying sandy outwash. Permeability is moderate in the silty mantle and rapid in the sandy part of the profile. Slopes range from 0 to 4 percent.

Typical pedon of Towes silt loam, in an area of Rhody-Towes complex, 0 to 4 percent slopes; 150 feet south and 3,000 feet west of the northeast corner of sec. 14, T. 49 N., R. 14 W., Burt Township, Alger County, Michigan; USGS Grand Sable Lake, Michigan, topographic quadrangle; lat. 46 degrees 38 minutes 59 seconds N. and long. 86 degrees 01 minute 17 seconds W., NAD 27:

- A1—0 to 9 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine granular structure; friable; many very fine to very coarse roots; strongly acid; clear smooth boundary.
- A2—9 to 19 inches; dark gray (10YR 4/1) silt loam, grayish brown (10YR 5/2) dry; weak thick platy structure grading to weak medium subangular blocky; friable to firm; common very fine to medium roots; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid; clear smooth boundary.
- 2Bw—19 to 22 inches; dark yellowish brown (10YR 4/4) sand; single grain; loose; about 1 percent gravel; slightly acid; clear wavy boundary.

- 2C—22 to 26 inches; pale brown (10YR 6/3) sand; single grain; loose; common fine prominent dark brown (7.5YR 3/3) iron and manganese concretions and nodules; about 1 percent gravel; slightly acid; clear wavy boundary.
- 3Cr—26 to 37 inches; very pale brown (10YR 7/3) and yellowish brown (10YR 5/6), weathered sandstone; massive; very firm; very strongly acid; abrupt wavy boundary.
- 3R—37 inches; very pale brown (10YR 7/3) and yellowish brown (10YR 5/6) sandstone bedrock.

### Traunik Series

The Traunik series consists of very deep, well drained soils on outwash plains and recessional moraines. These soils formed in a loamy mantle over gravelly and sandy outwash deposits. Permeability is moderate in the loamy mantle and very rapid in the sandy part of the profile. Slopes range from 1 to 35 percent.

Typical pedon of Traunik gravelly fine sandy loam, 1 to 6 percent slopes; 850 feet north and 2,400 feet west of the southeast corner of sec. 24, T. 45 N., R. 23 W., Skandia Township, Marquette County, Michigan; USGS Ladoga, Michigan, topographic quadrangle; lat. 46 degrees 16 minutes 38.98 seconds N. and long. 87 degrees 07 minutes 38.27 seconds W., NAD 27:

- Oa—0 to 1 inch; well decomposed forest litter; strongly acid; abrupt smooth boundary.
- E—1 to 4 inches; brown (7.5YR 4/2) gravelly fine sandy loam, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; friable; many very fine to coarse roots; about 15 percent gravel and 10 percent cobbles; strongly acid; clear wavy boundary.
- Bs1—4 to 11 inches; dark brown (7.5YR 3/4) gravelly fine sandy loam; weak fine subangular blocky structure; friable; many very fine to coarse roots; about 15 percent gravel and 10 percent cobbles; strongly acid; gradual wavy boundary.
- 2Bs2—11 to 24 inches; brown (7.5YR 4/4) very gravelly sand; weak very fine subangular blocky structure; loose; common very fine to coarse roots; 41 percent gravel and 16 percent cobbles; moderately acid; gradual wavy boundary.
- 2BC—24 to 31 inches; dark yellowish brown (10YR 4/4) very gravelly sand; single grain; loose; common very fine to coarse roots; 45 percent gravel and 13 percent cobbles; slightly acid; gradual wavy boundary.
- 2C—31 to 80 inches; pale brown (10YR 6/3) very gravelly sand; single grain; loose; few very fine to medium roots; 45 percent gravel and 13 percent cobbles; slightly effervescent; slightly alkaline.

## **Trenary Series**

The Trenary series consists of very deep, well drained soils on ground moraines and recessional moraines. These soils formed in a silty or loamy eolian mantle over loamy till. Permeability is moderate. Slopes range from 1 to 35 percent.

Typical pedon of Trenary fine sandy loam, 2 to 6 percent slopes; 190 feet south and 1,700 feet west of the northeast corner of sec. 4, T. 43 N., R. 21 W., Masonville Township, Delta County, Michigan; USGS Trenary, Michigan, topographic quadrangle:

- A—0 to 2 inches; very dark gray (5YR 3/1) fine sandy loam; weak medium granular structure; friable; about 2 percent gravel; moderately acid; abrupt wavy boundary.
- E—2 to 6 inches; brown (7.5YR 5/2) fine sandy loam, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; friable; about 2 percent gravel; moderately acid; abrupt wavy boundary.

- Bhs—6 to 12 inches; dark reddish brown (5YR 3/3) fine sandy loam; weak medium subangular blocky structure; friable; about 3 percent gravel; strongly acid; clear wavy boundary.
- Bs—12 to 17 inches; reddish brown (5YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; about 3 percent gravel; strongly acid; abrupt irregular boundary.
- E´—17 to 26 inches; reddish brown (5YR 5/3) sandy loam; weak thick platy structure; firm in place, friable where disturbed; few fine vesicular pores; about 2 percent gravel and 2 percent cobbles; strongly acid; abrupt irregular boundary.
- Bt—26 to 37 inches; dark reddish brown (2.5YR 3/4) sandy clay loam; moderate coarse subangular blocky structure; firm; continuous clay flows in pores, on some faces of peds, and in root channels; about 2 percent gravel and 2 percent cobbles; moderately acid; abrupt wavy boundary.
- C1—37 to 48 inches; reddish brown (2.5YR 4/4) sandy loam; weak medium subangular blocky structure; friable; about 2 percent gravel and 3 percent cobbles; neutral; clear wavy boundary.
- C2—48 to 80 inches; reddish brown (2.5YR 4/4) sandy loam; weak medium subangular blocky structure; friable; about 2 percent gravel and 3 percent cobbles; slightly effervescent; moderately alkaline.

### **Trout Bay Series**

The Trout Bay series consists of moderately deep, very poorly drained soils on seepy side slopes of sandstone benches and in depressions and drainageways on bedrock-controlled moraines. These soils formed in organic deposits overlying sandstone bedrock (fig. 18). Permeability is moderately slow to moderately rapid in the organic part of the profile, moderately slow in the Cr horizon, and extremely slow in the bedrock. Slopes range from 0 to 25 percent.

Typical pedon of Trout Bay muck, in an area of Deerton-Tokiahok-Trout Bay complex, 8 to 35 percent slopes, dissected; 2,128 feet east and 2,522 feet north of the southwest corner of sec. 25, T. 47 N., R. 20 W., Au Train Township, Alger County, Michigan; USGS Au Train, Michigan, topographic quadrangle; lat. 46 degrees 26 minutes 31 seconds N. and long. 80 degrees 45 minutes 12 seconds W., NAD 27:

- Oa1—0 to 7 inches; muck, black (10YR 2/1) broken face and rubbed; about 20 percent fiber, less than 5 percent rubbed; moderate medium granular structure; slightly sticky; strongly acid; clear wavy boundary.
- Oa2—7 to 19 inches; muck, black (10YR 2/1) broken face and rubbed; about 15 percent fiber, less than 5 percent rubbed; weak coarse subangular blocky structure parting to weak medium granular; slightly sticky; about 5 percent sand grains; moderately acid; abrupt smooth boundary.
- 2Cr—19 to 34 inches; olive yellow (2.5Y 6/6) and light grayish brown (2.5Y 6/2), weathered sandstone; massive; firm; slightly acid; abrupt smooth boundary. 2R—34 inches; sandstone bedrock.

### Voelker Series

The Voelker series consists of very deep, well drained soils in ice-margin complexes. These soils are shallow to ortstein. They formed in sandy glaciofluvial deposits and in the underlying loamy glaciolacustrine sediments. Permeability is rapid in the sandy part of the profile, moderate or moderately rapid in the ortstein, and moderately slow in the loamy part. Slopes range from 1 to 70 percent.

Typical pedon of Voelker fine sand, in an area of Garlic-Alcona-Voelker complex, 8 to 35 percent slopes, dissected; 330 feet west and 1,166 feet south of the northeast



Figure 18.—Pprofile of Trout Bay muck. Sandstone bedrock is at a depth of about 40 centimeters.

corner of sec. 31, T. 50 N., R. 26 W., Powell Township, Marquette County, Michigan; USGS Buckroe, Michigan, topographic quadrangle; lat. 46 degrees 41 minutes 24 seconds N. and long. 87 degrees 35 minutes 40 seconds W., NAD 27:

- Oa—0 to 1 inch; highly decomposed forest litter; moderate fine granular structure; very friable; abrupt smooth boundary.
- A—1 to 5 inches; dark gray (7.5YR 4/1) fine sand, gray (7.5YR 6/1) dry; weak very fine granular structure; very friable; many very fine to coarse roots; very strongly acid; clear wavy boundary.
- E—5 to 11 inches; reddish gray (5YR 5/2) fine sand, pinkish gray (5YR 7/2) dry; weak very fine subangular blocky structure; very friable; many very fine to coarse roots; very strongly acid; abrupt irregular boundary.
- Bhs—11 to 15 inches; dark reddish brown (5YR 3/2) fine sand; massive; very hard; ortstein occupies 70 percent of the horizon and is strongly cemented with tongues extending to a depth of 25 inches; many very fine to coarse roots; very strongly acid; clear irregular boundary.
- Bsm1—15 to 23 inches; dark reddish brown (5YR 3/4) and reddish brown (5YR 4/4) fine sand; massive; very hard; ortstein occupies 100 percent of the horizon and is strongly cemented; ortstein occurs as a nearly continuous layer; few very fine and fine roots in cracks; strongly acid; clear wavy boundary.
- Bsm2—23 to 31 inches; brown (7.5YR 5/4) fine sand; massive; very hard; ortstein occupies 90 percent of the horizon and is moderately cemented; few very fine and fine roots; strongly acid; gradual wavy boundary.
- 2E/B—31 to 39 inches; brown (7.5YR 5/3) loamy very fine sand, gray (7.5YR 6/2) dry (E); occupies 80 percent of the horizon; surrounding peds of reddish brown (5YR

- 4/4) very fine sandy loam (Bt); weak thin platy structure; firm; few very fine and fine roots; strongly acid; gradual wavy boundary.
- 2C1—39 to 54 inches; stratified reddish brown (5YR 5/4) loamy very fine sand and reddish brown (5YR 4/4) very fine sandy loam and silt loam; massive with weakly expressed thin platiness inherent from the parent material; firm; common fine vesicular pores; few very fine and fine roots; strongly acid; gradual wavy boundary.
- 2C2—54 to 80 inches; brown (7.5YR 5/3), stratified sand, very fine sand, and silt loam; massive; friable to loose; few very fine and fine roots; strongly acid.

### Waiska Series

The Waiska series consists of very deep, excessively drained soils on kame terraces on bedrock-controlled moraines and in glacial drainage channels. These soils formed in gravelly and sandy outwash. Permeability is very rapid. Slopes range from 0 to 70 percent.

Typical pedon of Waiska sand, 0 to 8 percent slopes; 2,475 feet south and 165 feet east of the northwest corner of sec. 33, T. 51 N., R. 31 W., Arvon Township, Baraga County, Michigan; USGS Keweenaw Bay SE, Michigan, topographic quadrangle:

- Oe—0 to 1 inch; moderately decomposed forest litter; weak fine granular structure; very friable; many roots; strongly acid; abrupt smooth boundary.
- E—1 to 4 inches; brown (7.5YR 4/2) sand; weak fine granular structure; very friable; many roots; about 5 percent gravel; strongly acid; abrupt smooth boundary.
- Bhs—4 to 8 inches; dark reddish brown (5YR 3/3) gravelly sand; weak fine subangular blocky structure parting to single grain; very friable to loose; many roots; about 15 percent gravel; strongly acid; abrupt smooth boundary.
- Bs1—8 to 11 inches; brown (7.5YR 4/4) gravelly sand; single grain; loose; common roots; about 20 percent gravel; strongly acid; clear smooth boundary.
- Bs2—11 to 18 inches; strong brown (7.5YR 4/6) very gravelly sand; single grain; loose; few roots; about 50 percent gravel; strongly acid; gradual smooth boundary.
- BC—18 to 35 inches; strong brown (7.5YR 5/6) very gravelly sand; single grain; loose; few roots; about 50 percent gravel; strongly acid; clear smooth boundary.
- C—35 to 80 inches; yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4) very gravelly sand with strata of coarse sand; single grain; loose; about 50 percent gravel; strongly acid.

### Wallace Series

The Wallace series consists of very deep, well drained, sandy soils on beach ridges. These soils contain ortstein. Permeability is moderate or moderately rapid in the ortstein layer and rapid in the rest of the profile. Slopes range from 0 to 70 percent.

Typical pedon of Wallace sand, 0 to 6 percent slopes; 100 feet west and 950 feet north of the southeast corner of sec. 12, T. 43 N., R. 9 W., Garfield Township, Mackinac County, Michigan; USGS Garnet, Michigan, topographic quadrangle:

- Oe—0 to 2 inches; partially decomposed leaf litter.
- E—2 to 10 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/2) dry; weak medium subangular blocky structure; very friable; many fine to coarse roots; very strongly acid; abrupt wavy boundary.

- Bhs—10 to 11 inches; dark reddish brown (5YR 3/2) sand; weak fine subangular blocky structure; very friable; many fine to coarse roots; very strongly acid; abrupt irregular boundary.
- Bhsm—11 to 21 inches; dark brown (7.5YR 3/3) sand; massive; very hard; ortstein occupies 95 percent of the horizon and is strongly cemented; ortstein occurs as a nearly continuous layer and as tongues that extend to a depth of 52 inches; few fine and medium roots; strongly acid; clear irregular boundary.
- Bsm—21 to 26 inches; dark brown (7.5YR 4/4) sand; massive; hard; ortstein occupies 95 percent of the horizon and is moderately cemented; ortstein occurs as a nearly continuous layer and as tongues that extend to a depth of 55 inches; few fine and medium roots; strongly acid; clear irregular boundary.
- BC—26 to 59 inches; brownish yellow (10YR 6/6) sand; single grain; loose; few fine roots; moderately acid; gradual wavy boundary.
- C—59 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; moderately acid.

### Whitewash Series

The Whitewash series consists of very deep, well drained soils on inactive flood plains. These soils formed in sandy alluvium. Permeability is rapid. Slopes range from 0 to 6 percent.

Typical pedon of Whitewash sand; 500 feet south of the northwest corner of sec. 7, T. 49 N., R. 12 W., McMillan Township, Luce County, Michigan; USGS Grand Marais NE, Michigan, topographic quadrangle; lat. 46 degrees 39 minutes 47 seconds N. and long. 85 degrees 51 minutes 52 seconds W., NAD 83:

- Oe—0 to 3 inches; black (10YR 2/1), moderately decomposed plant material; weak medium granular structure; very friable; many fine to coarse roots; moderately acid; abrupt smooth boundary.
- C—3 to 7 inches; yellowish brown (10YR 5/4) sand; single grain; loose; common fine to coarse roots; slightly acid; abrupt smooth boundary.
- Ab—7 to 9 inches; very dark grayish brown (10YR 3/2) fine sandy loam; moderate medium subangular blocky structure; friable; many fine to coarse roots; extremely acid; abrupt wavy boundary.
- C´1—9 to 16 inches; dark grayish brown (10YR 4/2) loamy fine sand; massive; firm; few fine to coarse roots; very strongly acid; abrupt wavy boundary.
- C'2—16 to 80 inches; 80 percent yellowish brown (10YR 5/4) sand; single grain; loose; 20 percent strata of brown (10YR 4/3) fine sandy loam 2 inches thick; strongly acid.

### Wurtsmith Series

The Wurtsmith series consists of very deep, moderately well drained soils on beach ridges. These soils formed in sandy beach deposits. Permeability is rapid. Slopes range from 1 to 8 percent.

Typical pedon of Wurtsmith sand, in an area of Wurtsmith-Deford complex, 0 to 6 percent slopes; 3,100 feet east and 1,500 feet south of the northwest corner of sec. 19, T. 47 N., R. 19 W., Au Train Township, Alger County, Michigan; USGS Munising, Michigan, topographic quadrangle; lat. 46 degrees 27 minutes 32 seconds N. and long. 86 degrees 43 minutes 38 seconds W., NAD 27:

- Oa—0 to 4 inches; well decomposed forest litter.
- A—4 to 5 inches; very dark grayish brown (10YR 3/2) sand, light brownish gray (10YR 6/2) dry; single grain; loose; many very fine to very coarse roots; about 1 percent gravel; very strongly acid; clear wavy boundary.
- Bw1—5 to 29 inches; yellowish brown (10YR 5/4) sand; single grain; loose; many very fine to very coarse roots; about 1 percent gravel; very strongly acid; gradual wavy boundary.
- Bw2—29 to 42 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few very fine to medium roots; about 1 percent gravel; moderately acid; gradual wavy boundary.
- C—42 to 80 inches; very pale brown (10YR 7/4) sand; single grain; loose; few very fine to medium roots; about 1 percent gravel; neutral.

### **Yalmer Series**

The Yalmer series consists of very deep, moderately well drained soils on bedrock-controlled moraines. These soils are moderately deep to a fragipan. They formed in sandy outwash over loamy till. Permeability is rapid in the sandy part of the profile, very slow in the fragipan, and moderate below the fragipan. Slopes range from 1 to 18 percent.

Typical pedon of Yalmer loamy sand, in an area of Munising-Yalmer loamy sands, 1 to 8 percent slopes; 1,300 feet north and 100 feet west of the center of sec. 32, T. 50 N., R. 33 W., L'Anse Township, Baraga County, Michigan; USGS Alberta, Michigan, topographic quadrangle:

- Oe—0 to 1 inch; partially decomposed forest litter; many roots; abrupt smooth boundary.
- A—1 to 3 inches; black (5YR 2/1) loamy sand, dark gray (5YR 4/1) dry; weak fine granular structure; very friable; many roots; about 3 percent gravel; extremely acid; abrupt smooth boundary.
- E—3 to 8 inches; reddish gray (5YR 5/2) loamy sand; weak medium and fine subangular blocky structure; very friable; common roots; about 3 percent gravel; extremely acid: abrupt wavy boundary.
- Bhs—8 to 11 inches; dark reddish brown (5YR 3/3) sand; weak fine subangular blocky structure; very friable; many roots; about 40 percent ortstein; about 3 percent gravel; extremely acid; abrupt irregular boundary.
- Bs1—11 to 15 inches; yellowish red (5YR 4/6) fine sand; weak fine subangular blocky structure; very friable; few roots; about 40 percent ortstein; about 3 percent gravel; extremely acid; clear wavy boundary.
- Bs2—15 to 24 inches; yellowish red (5YR 5/6) fine sand; weak fine subangular blocky structure; very friable; few roots; about 6 percent gravel; very strongly acid; abrupt wavy boundary.
- 2(E/B)x—24 to 29 inches; reddish gray (5YR 5/2) loamy fine sand (E); occupies about 70 percent of the horizon; surrounding peds of dark reddish brown (2.5YR 3/4) fine sandy loam (Bt); weak medium subangular blocky structure; very firm; many pores; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; about 10 percent gravel; very strongly acid; clear broken boundary.
- 2(B/E)x—29 to 40 inches; dark reddish brown (2.5YR 3/4) fine sandy loam (Bt); common distinct dusky red (2.5YR 3/2) clay films in pores and on faces of peds; occupies about 65 percent of the horizon; surrounded by reddish gray (5YR 5/2) loamy fine sand (E); weak very coarse subangular blocky structure; very firm; many vesicular pores; about 10 percent gravel; very strongly acid; gradual wavy boundary.

- 2Bt—40 to 66 inches; reddish brown (2.5YR 4/4) fine sandy loam; moderate medium platy structure parting to weak medium subangular blocky; firm; many pores; dark red (2.5YR 3/6) clay flows on faces of peds; about 14 percent gravel; strongly acid; clear wavy boundary.
- 2C—66 to 80 inches; reddish brown (2.5YR 4/4) fine sandy loam; massive; friable; about 14 percent gravel; moderately acid.

### **Yellowdog Series**

The Yellowdog series consists of moderately deep, excessively drained soils on bedrock benches. These soils formed in sandy and channery glaciofluvial deposits overlying sandstone bedrock. Permeability is very rapid. Slopes range from 0 to 6 percent.

Typical pedon of Yellowdog very channery sand, 0 to 6 percent slopes, stony; 1,740 feet south and 2,040 feet west of the northeast corner of sec. 20, T. 51 N., R. 26 W., Powell Township, Marquette County, Michigan; USGS Big Bay, Michigan, topographic quadrangle; lat. 46 degrees 48 minutes 13 seconds N. and long. 87 degrees 37 minutes 50 seconds W., NAD 27:

- Oa—0 to 2 inches; highly decomposed leaf litter; moderate very fine granular structure; very friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.
- Bw1—2 to 22 inches; reddish brown (5YR 4/4) very channery sand; weak very fine subangular blocky structure; very friable; many very fine to coarse roots; about 55 percent sandstone channers; very strongly acid; gradual wavy boundary.
- Bw2—22 to 32 inches; reddish brown (5YR 5/4) very channery sand; weak very fine subangular blocky structure; very friable; common very fine to medium roots; about 55 percent sandstone channers; moderately acid; abrupt wavy boundary.
- 2R—32 inches; dusky red (2.5YR 3/2) sandstone bedrock; hard bedrock contains fractures 2 to 10 millimeters thick that range from 1 to 5 feet apart; common very fine roots in crevices of bedrock.

### Zeba Series

The Zeba series consists of moderately deep, somewhat poorly drained soils on bedrock-controlled moraines. These soils formed in loamy till overlying sandstone bedrock. Permeability is moderate. Slopes range from 0 to 3 percent.

Typical pedon of Zeba sandy loam, 0 to 3 percent slopes; 1,450 feet north and 150 feet east of the southwest corner of sec. 31, T. 52 N., R. 32 W., Arvon Township, Baraga County, Michigan; USGS Aura, Michigan, topographic quadrangle:

- A—0 to 2 inches; very dark gray (10YR 3/1) sandy loam; moderate medium granular structure; friable; many roots; very strongly acid; abrupt smooth boundary.
- E—2 to 5 inches; grayish brown (10YR 5/2) sandy loam; moderate medium subangular blocky structure; friable; common roots; few fine distinct dark yellowish brown (10YR 4/6) and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; very strongly acid; clear smooth boundary.
- Bs—5 to 13 inches; dark brown (7.5YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; common roots; few fine prominent yellowish red (5YR 5/8) masses of iron accumulation; about 5 percent gravel; moderately acid; clear smooth boundary.
- E´—13 to 21 inches; reddish brown (5YR 5/3) sandy loam; moderate medium subangular blocky structure; friable; few roots; many medium prominent yellowish

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- red (5YR 5/8) masses of iron accumulation; about 5 percent gravel; moderately acid; clear smooth boundary.
- B/E—21 to 33 inches; reddish brown (2.5YR 4/4) sandy loam (Bt); common pores; few clay flows on faces of peds; occupies about 85 percent of the horizon; surrounded by reddish gray (5YR 5/2) loamy sand (E); weak coarse subangular blocky structure; firm; common medium prominent yellowish red (5YR 5/6) masses of iron accumulation; about 5 percent gravel; strongly acid; abrupt smooth boundary.
- 2R—33 inches; reddish brown (2.5YR 4/4) sandstone.

## Formation of the Soils

This section describes the factors of soil formation and relates them to the soils in the survey area. It also describes the processes of soil formation.

### **Factors of Soil Formation**

Soil forms through the interaction of five major factors. These are the physical, chemical, and mineral composition of the parent material; the climate under which the soil material has accumulated and has existed since accumulation; the plant and animal life on and in the soil; the relief, or topography; and the length of time that the processes of soil formation have acted on the parent material (Jenny, 1941).

Climate and plant and animal life are the active forces of soil formation. They slowly change the parent material into a natural body of soil that has genetically related layers, called horizons. The effects of climate and plant and animal life are conditioned by relief. The nature of the parent material affects the kind of soil profile that is formed and, in extreme cases, determines it almost entirely. Finally, time changes the parent material into a soil. Generally, a long time is required for the formation of distinct horizons.

The factors of soil formation are so closely interrelated in their effects on the soil that few generalizations can be made about the effect of any one factor unless conditions are specified for the other four. Many of the processes of soil formation are unknown.

### **Parent Material**

Parent material is the unconsolidated mass in which a soil forms. The parent material of the soils in Alger County was deposited by glaciers or by meltwater from the glaciers. Some of this material was subsequently reworked by water and wind. The glaciers covered the county about 10,000 years ago. Parent material determines the chemical and mineralogical composition of the soil. Although the soils in the county have parent material of common glacial origin, the properties of the parent material vary greatly, sometimes within a small area, depending on how the materials were deposited. The dominant parent materials in Alger County were deposited as till, outwash, eolian material, lake sediment, alluvium, or organic material.

Till is material that was deposited directly by glaciers with a minimum of water action. It consists of a mixture of particles of different sizes. The small pebbles in till have sharp corners, indicating that they have not been worn by water. Greylock and Dillingham soils are examples of soils that formed in till on ground moraines and disintegration moraines.

Outwash material was deposited by running water from melting glaciers. The size of the particles that make up outwash material depends on the speed of the water that carried them. When the water slows down, the coarser particles are deposited. The finer particles, such as very fine sand, silt, and clay, are carried by slowly moving water. Outwash deposits generally consist of layers of particles of similar size, such

as sand, coarse sand, and gravel. Traunik soils are examples of soils that formed in outwash material.

Eolian material was redeposited by wind after initial deposition by glaciers or meltwater from the glaciers. These eolian deposits are typically very fine sandy loam or silt loam and occur as a layer several inches to 1 foot thick over till or outwash material. Stutts and Grand Sable soils are examples of soils that formed in eolian material over outwash. Because eolian deposits in Alger County are thin, there has been some modification or mixing of the eolian material with the underlying material. Freeze-thaw cycles and the uprooting of trees by the wind are two possible causes of this modification.

Lake sediment is material that settled from still or slowly moving, deep lake water and from shallow, high-energy water near shorelines. Lake sediments are well sorted, and the size of the particles depends on the speed of the water that suspended them. Deer Park soils are examples of sandy soils that formed in parent material deposited in sandbars on a shallow lake bottom. Mongo soils are examples of fine textured soils that formed in parent material deposited on a deep lake bottom.

Alluvium is material that has been deposited by floodwater of present streams in recent time. The texture of this material depends on the speed of the water that deposited it. Evart soils are examples of soils that formed in alluvium.

Organic material is made up of plant remains. After the glaciers receded from the area, water was left standing in depressions on outwash plains, flood plains, moraines, and till plains. The grasses and sedges and other water-tolerant plants that grew around the edges of these depressions did not decompose but accumulated. Later, water-tolerant trees grew in these areas. As these trees died, their residue became part of the organic accumulation. Consequently, the depressions were eventually filled with organic material and developed into areas of muck. Carbondale soils are examples of soils that formed in organic material.

### **Plant and Animal Life**

Green plants have been the principal organisms influencing the soils in Alger County. Bacteria, fungi, earthworms, and humans also have been important. The chief contribution of plant and animal life is the addition of organic matter and nitrogen to the soil. The kind of organic material on and in the soil depends on the kinds of plants that grew on the soil. The residue of these plants accumulates on the surface of the soil. It decays and eventually becomes organic matter. Plant roots provide channels for the downward movement of water through the soil and add organic matter to the soil as they decay. Bacteria in the soil help to break down the organic matter into a form that can be used by plants. Carbondale and Tawas soils, which formed under wet conditions, contain a considerable amount of organic matter.

The native vegetation in Alger County was a mixture of coniferous and deciduous forest. Differences in natural soil drainage and changes in parent material affect the composition of forests.

In general, the well drained upland soils, such as Blue Lake and Garlic soils, were covered with sugar maple and white pine. The excessively drained Rubicon soils were covered with red pine, white pine, and jack pine. The very poorly drained soils in the county were covered with cedar, black spruce, and tamarack.

### Climate

Climate is important in the formation of soils. It determines the kind of plant and animal life on and in the soil and determines the amount of water available for the weathering of minerals and the transporting of soil materials. Through its influence on

soil temperature, climate determines the rate of chemical reactions in the soil. These climatic influences generally affect areas larger than a county.

The climate in Alger County is cool and humid. Presumably, it is similar to the climate under which the soils formed. The soils in Alger County differ from soils that formed in a dry, warm climate or from those that formed in a moist, hot climate. Climate is uniform throughout the county, but its effect is modified locally by the proximity to Lake Superior. The minor differences in the soils in Alger County are partially the result of climatic differences.

### Relief

Relief, or topography, has had a marked influence on the formation of the soils in Alger County through its influence on natural drainage, erosion, plant cover, and soil temperature. Slopes in the county range from 0 to 70 percent. Natural drainage ranges from excessively drained on sandy hilltops to very poorly drained in depressions.

Relief influences the formation of soil by affecting runoff and drainage. Drainage in turn, through its effect on aeration of the soil, determines the color of the soil. Runoff is most rapid on the steeper slopes, but in low areas, water can be temporarily ponded.

Water and air move freely through well drained soils but slowly through very poorly drained soils. In soils that are well aerated, the iron and aluminum compounds that give most soils their color are brightly colored and are oxidized. Poorly aerated soils are dull gray and mottled. Traunik soils are examples of well drained, well aerated soils; Davies soils are examples of poorly drained, poorly aerated soils. Both soils formed in similar parent material.

#### Time

The differences in the length of time that the parent material has been in place are commonly reflected in the degree of development of the soil profile. Some soils form rapidly; others form slowly. Generally, a long time is required for the development of distinct horizons in a soil.

The soils of Alger County range from young to mature. The glacial deposits in which many of the soils formed have been exposed to soil-forming factors long enough for the development of distinct horizons. Some soils that formed in recent alluvial sediments have not been in place long enough for the development of distinct horizons. Sturgeon soils, which formed in alluvial materials, are young soils. Greylock soils show the effects of leaching of lime from the soil, which has taken place over a long period of time.

### **Processes of Soil Formation**

The processes responsible for the development of the soil horizons from unconsolidated parent material is referred to as soil genesis. Soil morphology describes the physical, chemical, and biological properties of these horizons.

Several processes were involved in the development of soil horizons in Alger County. These processes include the accumulation of organic matter; the leaching of lime (calcium carbonate) and other bases; the reduction and transfer of iron; the formation and translocation of clay minerals; and the development of soil structure. In most soils, more than one of these processes have been active in the development of horizons.

Organic matter accumulates at the surface to form an A horizon. If the soil is plowed, the A horizon is mixed into a plow layer, or Ap horizon. In the soils of Alger

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County, the content of organic matter in the surface layer ranges from high to low. For example, Ruse soils have a high content of organic matter in the surface layer, and Deer Park soils have a low content of organic matter.

The leaching of carbonates and other bases has occurred in most of the soils. Soil scientists generally agree that leaching of bases in soils precedes the translocation of clay minerals. Many of the soils in Alger County are moderately or strongly leached. Traunik soils are leached of carbonates to a depth of 18 to 40 inches. Fence soils are leached to a depth of more than 60 inches. This difference in the depth of leaching is a result of time, relief, and parent material.

The reduction and transfer of iron, a process called gleying, is evident in the somewhat poorly drained, poorly drained, and very poorly drained soils. The gray or dull color in the subsoil indicates the reduction and loss of iron. Davies soils are examples of soils in which the gleying processes are evident.

Translocation of clay minerals has contributed to horizon development. An eluviated, or leached, E horizon above an illuviated Bt horizon has a lower content of clay than the Bt horizon and typically is lighter in color. The Bt horizon typically has an accumulation of clay and clay films in pores and on the faces of peds. The soils displaying this translocation of clay were probably leached of carbonates and soluble salts to a considerable extent before the translocation of clay took place. Leaching of bases and translocation of clays are among the more important processes in horizon differentiation. In Trenary soils, translocated clay, in the form of clay films, has accumulated in the Bt horizon.

In many of the soils in Alger County, iron, aluminum, and humus have moved from the A and E horizons to an illuvial Bhs horizon. The Bhs horizon in such soils commonly is dark reddish brown. Kalkaska and Blue Lake soils are examples of soils in which translocated iron, aluminum, and humus have affected the Bhs horizon.

With the passage of time, the primary soil particles of sand, silt, and clay become combined or arranged into secondary compound particles, or peds. The causes of this aggregation may be physical processes, such as wetting and drying and freezing and thawing cycles; chemical weathering processes; and the activities of organisms, such as earthworms. Soil structure is important because it affects aeration and permeability. The ability of a soil to support plants and its response to management depend as much on soil structure as on fertility.

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# **Glossary**

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "National Soil Survey Handbook" (available in local offices of the Natural Resources Conservation Service or on the Internet).

- **ABC soil.** A soil having an A, a B, and a C horizon.
- **Ablation till.** Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.
- **AC soil.** A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.
- **Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.
- **Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.
- **Alluvial cone.** A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.
- **Alluvial fan.** A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.
- **Alluvium.** Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.
- **Alpha,alpha-dipyridyl.** A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.
- **Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.
- **Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.
- **Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay. **Aspect.** The direction toward which a slope faces. Also called slope aspect.
- **Association**, **soil**. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.
- **Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the

difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

- **Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.
- **Backswamp.** A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.
- **Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.
- **Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.
- **Base slope** (geomorphology). A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).
- **Bedding plane.** A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.
- **Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.
- **Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- **Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
- **Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.
- **Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
- **Bottom land.** An informal term loosely applied to various portions of a flood plain.
- **Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.
- **Breaks.** A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.
- **Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.
- **Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush

- management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.
- **Cable yarding.** A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.
- **Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.
- Canopy. The leafy crown of trees or shrubs. (See Crown.)
- **Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- **Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.
- **Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- **Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. See Terracettes.

- **Cement rock.** Shaly limestone used in the manufacture of cement.
- **Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.
- **Chemical treatment.** Control of unwanted vegetation through the use of chemicals. **Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.
- **Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay depletions. See Redoximorphic features.
- **Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- **Claypan.** A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.
- **Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- Coarse textured soil. Sand or loamy sand.
- **Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- **Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.
- **COLE** (coefficient of linear extensibility). See Linear extensibility.
- **Colluvium.** Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

- **Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.
- **Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- **Concretions.** See Redoximorphic features.
- **Conglomerate.** A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.
- Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.
- **Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.
- **Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."
- **Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.
- **Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.
- **Coprogenous earth (sedimentary peat).** A type of limnic layer composed predominantly of fecal material derived from aquatic animals.
- **Corrosion** (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.
- **Corrosion** (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- **Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- **Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
- **Cropping system.** Growing crops according to a planned system of rotation and management practices.
- **Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.
- **Crown.** The upper part of a tree or shrub, including the living branches and their foliage.

- **Cryoturbate.** A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.
- **Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.
- **Cutbanks caving** (in tables). The walls of excavations tend to cave in or slough. **Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.
- **Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period. **Delta.** A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of

relatively quiet water, generally a sea or lake.

- **Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.
- **Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.
- **Dip slope.** A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.
- **Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- **Divided-slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.
- Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."
- **Drainage, surface.** Runoff, or surface flow of water, from an area.
- **Drainageway.** A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.
- **Drift.** A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.
- **Drumlin.** A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from which the ice approached and a gentler slope tapering in the other direction. The

- longer axis is parallel to the general direction of glacier flow. Drumlins are products of streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.
- **Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.
- **Dune.** A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.
- Earthy fill. See Mine spoil.
- **Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.
- **Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.
- **Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.
- **Eolian deposit.** Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.
- **Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.
- **Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.
- **Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
  - *Erosion* (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
  - *Erosion* (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.
- **Erosion pavement.** A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.
- **Erosion surface.** A land surface shaped by the action of erosion, especially by running water.
- **Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.
- **Esker.** A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.
- **Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

- **Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.
- **Fan remnant.** A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.
- **Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- **Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.
- **Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.
- **Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil. Sandy clay, silty clay, or clay.
- **Firebreak.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.
- **First bottom.** An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.
- **Flaggy soil material.** Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.
- **Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.
- **Flood plain.** The nearly level plain that borders a stream and is subject to flooding unless protected artificially.
- **Flood-plain landforms.** A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, floodplain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.
- **Flood-plain splay.** A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.
- **Flood-plain step.** An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.
- **Fluvial.** Of or pertaining to rivers or streams; produced by stream or river action.
- **Foothills.** A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).
- **Footslope.** The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- Forb. Any herbaceous plant not a grass or a sedge.
- **Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.

- **Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.
- **Fragipan.** A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.
- **Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
- **Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.
- **Glaciolacustrine deposits.** Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.
- **Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- **Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- **Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- **Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.
- **Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
- **Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.
- **Ground water.** Water filling all the unblocked pores of the material below the water table.
- **Gully.** A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
- **Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
- **Hard to reclaim** (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.
- **Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.
- **Head slope** (geomorphology). A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.
- **Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

- **High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.
- **Hill.** A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.
- **Hillslope**. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.
- **Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

*L horizon.*—A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon*.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure;

(3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

*R layer.*—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

**Igneous rock.** Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

- **Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.
- **Increasers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.
- **Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.
- **Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.
- **Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.
- **Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

- Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.
- **Interfluve** (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.
- **Intermittent stream.** A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.
- **Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. See Redoximorphic features.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders. Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction. Drip (or trickle).—Water is applied slowly and under low pressure to the surface

of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

**Kame.** A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

**Karst** (topography). A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

**Knoll.** A small, low, rounded hill rising above adjacent landforms.

**Ksat.** Saturated hydraulic conductivity. (See Permeability.)

**Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Lake plain.** A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

**Lake terrace.** A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

**Lamellae.** Thin layers in the soil where illuviated clay particles have accumulated. These layers generally form in sandy soils and are commonly irregular or discontinuous.

**Landslide.** A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Lodgment till.** A basal till commonly characterized by compact fissile structure and containing stones oriented with their long axes generally parallel to the direction of ice movement.

- **Loess.** Material transported and deposited by wind and consisting dominantly of silt-sized particles.
- Low strength. The soil is not strong enough to support loads.
- **Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.
- **Marl.** An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.
- **Mass movement.** A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.
- Masses. See Redoximorphic features.
- **Meander belt.** The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.
- **Meander scar.** A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.
- **Meander scroll.** One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.
- **Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.
- Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.
- **Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.
- **Mine spoil.** An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.
- **Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.
- **Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.
- **Miscellaneous area.** A kind of map unit that has little or no natural soil and supports little or no vegetation.
- **Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.
- **Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.
- **Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.
- **Moraine.** In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.
- **Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.
- **Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—few, common, and many; size—

- fine, medium, and coarse; and contrast—faint, distinct, and prominent. The size measurements are of the diameter along the greatest dimension. Fine indicates less than 5 millimeters (about 0.2 inch); medium, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and coarse, more than 15 millimeters (about 0.6 inch).
- **Mountain.** A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.
- **Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)
- **Mudstone.** A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.
- **Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.
- **Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.
- **Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.) **Nodules.** See Redoximorphic features.
- **Nose slope** (geomorphology). A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slopewash sediments (for example, slope alluvium).
- **Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.
- **Organic material (parent material).** Parent material consisting of accumulated plant remains.
- **Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

- **Ortstein.** A cemented spodic horizon in which the cementing material consists of illuviated sesquioxides, mostly iron and organic matter.
- **Outwash.** Stratified and sorted sediments (chiefly sand and gravel) removed or "washed out" from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.
- **Outwash plain.** An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

- **Paleoterrace.** An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.
- **Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.
- Parent material. The unconsolidated organic and mineral material in which soil forms
- **Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)
- **Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.
- **Pedisediment.** A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.
- **Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.
- **Percolation.** The movement of water through the soil.
- **Permafrost.** Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.
- Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

- **pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)
- **Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.
- **Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.
- **Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.
- **Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.
- **Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
- **Plateau** (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at

least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

**Plinthite.** The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

**Plowpan.** A compacted layer formed in the soil directly below the plowed layer. **Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings. See Redoximorphic features.

Potential native plant community. See Climax plant community.

**Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

**Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

**Red beds.** Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

**Redoximorphic concentrations.** See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

- 1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
  - A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; and
  - B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
  - C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
- 2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
  - A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix: and
  - B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
- 3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

**Regolith.** All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

**Relief.** The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

**Rill.** A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

**Riser.** The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

- **Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.
- **Root zone.** The part of the soil that can be penetrated by plant roots.
- **Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.
- **Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.
- **Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.
- Sandstone. Sedimentary rock containing dominantly sand-sized particles.
- **Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.
- Saturated hydraulic conductivity (Ksat). See Permeability.
- **Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.
- **Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.
- **Sedimentary rock.** A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.
- **Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)
- **Series**, **soil**. A group of soils that have profiles that are almost alike. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.
- **Sesquioxide.** An oxide containing three atoms of oxygen and two of another element (e.g., aluminum oxide).
- **Shale.** Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.
- **Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.
- **Shoulder.** The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.
- **Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.
- **Side slope** (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.
- **Silica.** A combination of silicon and oxygen. The mineral form is called quartz.
- **Silica-sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.
- **Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05

- millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.
- **Siltstone.** An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.
- **Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.
- **Sinkhole.** A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.
- **Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.
- **Slickensides** (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.
- **Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.
- Slope alluvium. Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.
- **Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.
- **Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.
- **Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.
- **Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.
- **Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clav	less than 0 002

- **Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.
- **Spodic horizon.** A mineral soil horizon that is characterized by the illuvial accumulation of amorphous materials composed of aluminum and organic carbon with or without iron. The spodic horizon has a certain minimum thickness and a minimum quantity of extractable carbon plus iron plus aluminum in relation to its content of clay.
- Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.
- **Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.
- **Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.
- **Strath terrace.** A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).
- **Stream terrace.** One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.
- **Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.
- **Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).
- **Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.
- **Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth. **Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.
- **Substratum.** The part of the soil below the solum.
- Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.
- **Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.
- **Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.
- **Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

- **Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.
- **Talus.** Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.
- **Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.
- **Terminal moraine.** An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.
- **Terrace** (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.
- **Terrace** (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.
- **Terracettes.** Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.
- **Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."
- **Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified
- **Till.** Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.
- **Till plain.** An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.
- **Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- **Toeslope.** The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.
- **Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

- **Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- **Tread.** The flat to gently sloping, topmost, laterally extensive slope of terraces, floodplain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.
- **Tuff.** A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.
- **Upland.** An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.
- **Valley fill.** The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.
- **Variegation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- **Varve.** A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.
- **Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.
- **Weathering.** All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.
- **Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.
- Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.
- **Windthrow.** The uprooting and tipping over of trees by the wind.

# **Tables**

Table 1.--Temperature and Precipitation
(Recorded in the period 1971-2000 at Munising, Michigan)

	 	Temperature					Precipitation				
	   			2 years			   	2 years	s in 10		
Month	daily	Average   daily  minimum 	Average     	Maximum	   Minimum  temperature   lower	Average  number of   growing   degree		Less		Average number of days with 0.10 inch	snowfall
	İ	İ	İ	than	than	days*	İ	<u> </u>	<u> </u>	or more	<u> </u>
	°F	°F	°F	°F	<sup>o</sup> f	Units	In	In	In		In
January	   23.9 	   8.3 	   16.1 	44	   -18 	   0 	   3.36 	   1.94 	   4.50 	   11 	   43.9 
February	26.7	9.8	18.2	49	-17	1	2.01	1.00	2.82	6	23.7
March	   35.6 	   18.7 	   27.1 	60	   -9 	   9 	2.38	1.39	   3.38 	   6 	   19.0 
April	47.0	28.7	37.9	77	7	76	2.02	1.09	2.95	   6	5.5
May	   61.5 	   39.1 	   50.3	   88	   23 	   329 	2.73	   1.59	   3.74	   6 	   .6
June	   69.6	47.6	58.6	91	   31 	   557 	3.12	1.63	4.46	   7	.0
July	75.3	54.2	64.7	93	   37 	765	3.34	1.69	4.92	   6 	.0
August	74.4	54.2	64.3	92	37	742	3.02	1.83	4.21	   6 	.0
September	65.7	47.5	56.6	87	30 	489	3.90	2.65	5.05	   9 	.0
October	54.1	37.5	45.8	77	   21 	207	3.77	2.55	4.95	   9 	2.2
November	39.9	27.1	33.5	62	   6 	   26	3.27	2.11	4.43	   8 	13.0
December	29.0	15.6	22.3	48	   -11 	   1	3.52	2.12	4.88	   11	38.2
Yearly:	   	   	   		   	   	   		   	   	   
Average	   50.2 	32.3	   41.3		   	 	 		 	   	 
Extreme	   101	   -27	 	95	   -21 				 	 	 
Total	 	 	 		 	3,200	36.45	20.71	   42.12	   91 	   146.1 

<sup>\*</sup> A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall
(Recorded in the period 1971-2000 at Munising, Michigan)

	Temperature					
Probability	24	0=		o <sub>F</sub>	32	0=
	24 <sup>O</sup> F or lower		28	_	or lo	
ast freezing   temperature					     	
in spring:						
1 year in 10			i		į	
later than	May	13	May	29	June	19
2 years in 10						
later than	May	7	May	22	June	11
F						
5 years in 10   later than	Apr.	25	May	9	May	27
First freezing   temperature   in fall:					     	
1 year in 10						
earlier than	Oct.	16	Oct.	2	Sept.	12
2 years in 10						
earlier than	Oct.	22	Oct.	8	Sept.	18
5 years in 10						
earlier than	Nov.	4	Oct.	20	Oct.	1

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Munising,
Michigan)

	Daily minimum temperature during growing season				
Probability					
	Higher	Higher	Higher		
	than	than	than		
	24 °F	28 °F	32 °F		
	Days	Days	Days		
9 years in 10	163	146	100		
8 years in 10	174	154	111		
5 years in 10	196	169	132		
2 years in 10	217	184	152		
1 year in 10	228	192	163		

Table 4.--Acreage and Proportionate Extent of the Soils

Map   symbol	Soil name	Acres	Percent
	 	7	   *
11C   Deer Park s	and, 0 to 10 percent slopes	2,287	0.4
11E Deer Park s	and, 10 to 25 percent slopes	325	*
	and, 25 to 60 percent slopes	849	0.1
	d, 0 to 6 percent slopes	18,354	3.0
12D Rubicon san	d, 6 to 15 percent slopes	5,900	1.0
12E Rubicon san	d, 15 to 35 percent slopes	1,883	0.3
13B   Kalkaska sa 13D   Kalkaska sa	nd, 6 to 15 percent slopes	35,196 10,440	5.8 1.7
13E   Kalkaska sa	nd, 15 to 35 percent slopes	2,650	0.4
	nd, 0 to 3 percent slopes	1,652	0.3
	, 0 to 3 percent slopes	6,019	1.0
	d, 0 to 3 percent slopes	1,415	0.2
	k	4,180	0.7
		752	0.1
21A   Ingalls san	d, 0 to 3 percent slopes	823	0.1
24B Munising fi	ne sandy loam, 1 to 6 percent slopes	817	0.1
25B Munising-Ya	lmer complex, 1 to 6 percent slopes	1,358	0.2
25D Munising-Ya	lmer complex, 6 to 18 percent slopes	386	*
	t loam, 6 to 15 percent slopes	1,603	0.3
· -		511	*
,	lmer-Frohling complex, calcareous substratum, 1 to 6 percent slopes	8,749	1.4
· ·	fine sand, 1 to 6 percent slopes	1,519	0.3
	fine sand, 15 to 35 percent slopes	170 927	0.2
	ly loamy sand, 0 to 6 percent slopes, very stony	1,105	0.2
	cobbly muck	211	*
	muck, very stony	358	*
	Train complex, 1 to 15 percent slopes	888	0.1
47E Deerton-Au	Train complex, 6 to 35 percent slopes	369	*
48 Burt muck		325	*
	e sandy loam, 1 to 6 percent slopes	353	*
	complex	1,000	0.2
	fine sandy loam, 1 to 6 percent slopes	262	*
	Lupton, and Tawas soils	49,830	8.2
	enwood, and Loxley soils	15,181	2.5
	hma mucks	7,506	1.2
	and gravel	4,902 388	0.8   *
	s and Udorthents, nearly level to very steep	1,064	0.2
	andy loam, 1 to 6 percent slopes	1,256	0.2
	andy loam, 6 to 15 percent slopes	190	*
	au-Deerton complex, bedrock terrace, 1 to 20 percent slopes	2,294	0.4
	au-Deerton complex, bedrock terrace, 1 to 45 percent slopes	593	*
66D Ruse-Ensign	-Nykanen complex, bedrock terrace, 1 to 20 percent slopes	5,150	0.8
	-Nykanen complex, bedrock terrace, 1 to 45 percent slopes	762	0.1
	y	29	*
	nd, 1 to 6 percent slopes	966	0.2
	eon silt loams, 0 to 2 percent slopes, frequently flooded	1,748	0.3
	iahok-Trout Bay complex, 8 to 35 percent slopes, dissectediahok-Trout Bay complex, 15 to 70 percent slopes, dissected	1,897	0.3
	Lake-Voelker complex, 1 to 12 percent slopes, dissected	5,320 2,387	0.9
	Lake-Voelker complex, 8 to 35 percent slopes, dissected	5,500	0.9
	Lake-Voelker complex, 15 to 60 percent slopes, dissected	744	0.1
	Lake-Voelker complex, 1 to 6 percent slopes	660	0.1
	Lake-Voelker complex, 6 to 15 percent slopes	1,027	0.2
77E   Garlic-Blue	Lake-Voelker complex, 15 to 35 percent slopes	191	*
	ey mucks	12,292	2.0
	d mucks	11,829	1.9
	e sand, 0 to 6 percent slopes	464	*
	fine sandy loam, 1 to 12 percent slopes, dissected	169	*
	wson complex, 0 to 15 percent slopes	192	*
109F Rousseau-Da	wson complex, 0 to 60 percent slopes	78	<b>*</b>

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol		Acres	Percent
125B	  Stutts-Kalkaska complex, 0 to 6 percent slopes	3,063	0.5
125D	Stutts-Kalkaska complex, 6 to 15 percent slopes	3,357	0.6
125E	Stutts-Kalkaska complex, 15 to 35 percent slopes	782	0.1
135B	Munising, calcareous substratum-Ensley complex, 0 to 6 percent slopes	932	0.2
145C	Munising-Yalmer complex, 1 to 12 percent slopes, dissected, very stony	3,250	0.5
146B	Munising-Skanee complex, 0 to 6 percent slopes, stony	3,550	0.6
147A	Skanee-Gay complex, 0 to 3 percent slopes, very stony	1,767	0.3
148B	Shoepac-Ensley complex, 0 to 6 percent slopes	20,903	3.4
155A	Zeba-Jacobsville complex, 0 to 3 percent slopes, very stony	758	0.1
157B	Reade-Nahma complex, 0 to 6 percent slopes, stony	1,100	0.2
158C	Munising-Abbaye fine sandy loams, 1 to 12 percent slopes, dissected, stony	6,017	1.0
160B	Paquin-Finch sands, 0 to 6 percent slopes	7,279	1.2
161B	Yellowdog-Buckroe complex, 0 to 6 percent slopes, stony	612	0.1
165B	Chocolay-Waiska complex, 1 to 6 percent slopes, very stony	406	*
166	Skandia mucky peat	661	0.1
167	Skandia-Jacobsville complex, stony	829	0.1
170B	Chocolay very stony fine sandy loam, 1 to 6 percent slopes, very stony	1,472	0.2
171B 172D	Paavola very gravelly loamy sand, 0 to 6 percent slopes, very stony	1,854	0.3
1725 172F	Buckroe-Rock outcrop complex, 6 to 25 percent slopes, very bouldery   Buckroe-Rock outcrop complex, 25 to 70 percent slopes, very bouldery	717 236	0.1
172F 176B	Croswell-Kinross complex, 0 to 6 percent slopes.	1,382	0.2
181E	Frohling-Tokiahok complex, 8 to 35 percent slopes, dissected, stony	903	0.1
185B	McMaster cobbly sandy loam, 0 to 4 percent slopes	1,405	0.1
186B	Chatham fine sandy loam, 1 to 6 percent slopes, stony	5,314	0.2
186D	Chatham fine sandy loam, 6 to 15 percent slopes, stony	2,415	0.4
187B	Reade silt loam, 0 to 4 percent slopes	799	0.1
188B	Eben very cobbly sandy loam, 1 to 6 percent slopes, stony	3,998	0.7
188D	Eben very cobbly sandy loam, 6 to 15 percent slopes, stony	316	*
188E	Eben very cobbly sandy loam, 15 to 35 percent slopes, stony	396	*
191B	Ruse-Ensign complex, 0 to 3 percent slopes	1,593	0.3
197B	Shoepac-Trenary silt loams, 1 to 6 percent slopes	21,495	3.5
198B	Shoepac-Reade silt loams, 1 to 4 percent slopes	825	0.1
200A	Charlevoix-Ensley complex, 0 to 3 percent slopes	8,700	1.4
202B	Sauxhead sandy loam, 1 to 6 percent slopes, rocky, very stony	1,195	0.2
206B	Traunik cobbly fine sandy loam, 1 to 6 percent slopes	3,783	0.6
206D	Traunik cobbly fine sandy loam, 6 to 15 percent slopes	689	0.1
211B	Munising-Abbaye fine sandy loams, 1 to 6 percent slopes	5,353	0.9
214B	Kalkaska-Blue Lake complex, 1 to 6 percent slopes	1,893	0.3
214D	Kalkaska-Blue Lake complex, 6 to 15 percent slopes	3,358	0.6
214E	Kalkaska-Blue Lake complex, 15 to 35 percent slopes	1,464	0.2
221B	Jeske-Au Train-Gongeau complex, 0 to 8 percent slopes	2,180	0.4
225B	Cusino loamy sand, 1 to 6 percent slopes	1,414	0.2
225D	Cusino loamy sand, 6 to 15 percent slopes	309	*
226B	Kalkaska-Cusino complex, 1 to 6 percent slopes	14,907	2.5
226D	Kalkaska-Cusino complex, 6 to 15 percent slopes	4,799	0.8
226E	Kalkaska-Cusino complex, 15 to 35 percent slopes	3,817	0.6
226F	Kalkaska-Cusino complex, 35 to 70 percent slopes   Halfaday sand, 0 to 3 percent slopes	2,813	0.5
227A 232B	Shelldrake sand, 0 to 8 percent slopes	2,825	0.5
232B 233B	Abbaye-Zeba complex, 0 to 6 percent slopes, very stony	517 797	0.1
233B 234A	Levasseur-Burt complex, 0 to 3 percent slopes, very stony	1,660	0.1
234A 235B	Sauxhead-Burt complex, 0 to 4 percent slopes, very stony	4,047	0.3
235B 236B	Waiska stony sandy loam, 1 to 6 percent slopes, extremely bouldery	790	0.7
236D	Waiska stony sandy loam, 6 to 15 percent slopes, extremely bouldery	442	*
237B	Chatham-Davies complex, 0 to 6 percent slopes	1,586	0.3
239B	Longrie-Shingleton complex, 1 to 6 percent slopes	896	0.1
240F	Trout Bay-Gongeau-Shingleton-Rock outcrop complex, 1 to 70 percent slopes	1,895	0.3
241	Cathro-Gay mucks	778	0.1
242B	Kalkaska sand, 0 to 6 percent slopes, severely burned	8,875	1.5
242D	Kalkaska sand, 6 to 15 percent slopes, severely burned	2,326	0.4
242F	Kalkaska sand, 35 to 70 percent slopes, severely burned	416	*
243	Markey mucky peat	3,474	0.6

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
245B	Trout Bay-Lupton-Gongeau complex, 0 to 6 percent slopes	4,315	0.7
246B	Garlic sand, 0 to 6 percent slopes	14,142	2.3
246D	Garlic sand, 6 to 15 percent slopes	10,127	1.7
246E	Garlic sand, 15 to 35 percent slopes	2,224	0.4
248B	Escanaba-Greylock complex, 1 to 6 percent slopes	4,414	0.7
248D	Escanaba-Greylock complex, 6 to 15 percent slopes	2,180	0.4
248E	Escanaba-Greylock complex, 15 to 35 percent slopes	338	*
249B	Sauxhead-Skandia complex, 0 to 4 percent slopes	2,609	0.4
250B	Chocolay-Jacobsville complex, 0 to 6 percent slopes, extremely stony	2,073	0.3
251B	Greylock fine sandy loam, 1 to 6 percent slopes	2,192	1
251D	Greylock fine sandy loam, 6 to 15 percent slopes	1,094	0.2
252A	Finch-Kinross complex, 0 to 3 percent slopes	7,956	1.3
254C	Kalkaska-Blue Lake complex, 1 to 12 percent slopes, dissected	776	0.1
254E	Kalkaska-Blue Lake complex, 8 to 35 percent slopes, dissected	4,143	0.7
254F	Kalkaska-Blue Lake complex, 15 to 70 percent slopes, dissected	2,068	0.3
255D	Wallace sand, 1 to 15 percent slopes	236	*
256B	Whitewash sand, 0 to 4 percent slopes	387	*
266A	Spot-Finch complex, 0 to 3 percent slopes	1,132	0.2
267A	Finch sand, 0 to 3 percent slopes	1,185	0.2
268C	Munising, calcareous substratum-Frohling, calcareous substratum-Cookson fine sandy	0 525	0.4
2608	loams, 1 to 12 percent slopes, dissected	2,537	0.4
269E	Frohling, calcareous substratum-Garlic-Cookson complex, 8 to 35 percent slopes,   dissected	000	0.1
2726		880	0.1
272C	Munising-Yalmer-Frohling complex, calcareous substratum, 1 to 12 percent slopes,   dissected	1,367	00
07ED	Munising, calcareous substratum-Cookson fine sandy loams, 1 to 6 percent slopes	•	0.2
275B 281E	Mongo silt loam, 8 to 45 percent slopes, dissected	6,207 149	1.0
282B	Furlong-Shingleton complex, 1 to 6 percent slopes		0.2
282D	Furlong-Shingleton complex, 6 to 15 percent slopes	1,171 259	0.2
284B	Steuben-Blue Lake-Kalkaska complex, 1 to 6 percent slopes	2,525	0.4
284D	Steuben-Blue Lake-Kalkaska complex, 6 to 15 percent slopes	2,803	0.5
284E	Steuben-Blue Lake-Kalkaska complex, 15 to 35 percent slopes	570	*
285B	Halfaday-Kinross complex, 0 to 4 percent slopes	393	*
286B	Greylock-Cookson fine sandy loams, 1 to 6 percent slopes	2,386	0.4
287B	McMaster-Davies complex, 0 to 4 percent slopes	2,988	0.5
290A	Namur-Ruse complex, 0 to 2 percent slopes, very rocky, very stony	330	*
292B	Mashek fine sandy loam, sandy substratum, 0 to 4 percent slopes	351	*
296D	Islandlake-McMillan complex, 6 to 15 percent slopes	338	*
296E	Islandlake-McMillan complex, 15 to 35 percent slopes	620	0.1
297B	Rubicon sand, 0 to 6 percent slopes, severely burned	1,876	0.3
297D	Rubicon sand, 6 to 15 percent slopes, severely burned	339	*
298B	Wurtsmith-Deford complex, 0 to 6 percent slopes	226	*
299F	Shelldrake fine sand, 2 to 75 percent slopes	413	*
300F	Shelldrake-Dune land complex, 2 to 75 percent slopes	1,912	0.3
301F	Cookson-Nykanen complex, 15 to 50 percent slopes, dissected	360	*
302B	Dillingham-Kalkaska complex, 1 to 6 percent slopes	2,650	0.4
302D	Dillingham-Kalkaska complex, 6 to 15 percent slopes	6,659	1.1
302E	Dillingham-Kalkaska complex, 15 to 35 percent slopes	5,211	0.9
302F	Dillingham-Kalkaska complex, 35 to 70 percent slopes	421	*
303B	Kiva-Trenary fine sandy loams, 1 to 6 percent slopes	157	*
303D	Kiva-Trenary fine sandy loams, 6 to 15 percent slopes	175	*
303E	Kiva-Trenary fine sandy loams, 15 to 35 percent slopes	194	*
305B	Wurtsmith-Meehan sands, 0 to 8 percent slopes	266	*
306C	Deerton-Tokiahok-Jeske complex, 1 to 12 percent slopes, dissected	1,580	0.3
307B	Rubicon sand, 0 to 6 percent slopes, very deep water table	3,530	0.6
307D	Rubicon sand, 6 to 15 percent slopes, very deep water table	280	*
308B	Rubicon-Sultz complex, 0 to 6 percent slopes	147	*
308D	Rubicon-Sultz complex, 6 to 15 percent slopes	100	*
309B	Rubicon sand, 0 to 6 percent slopes, deep water table	1,983	0.3
309D	Rubicon sand, 6 to 15 percent slopes, deep water table	10	*
310B	Kalkaska sand, 0 to 6 percent slopes, burned	11,053	1.8
310D	Kalkaska sand, 6 to 15 percent slopes, burned	2,507	0.4

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
310E		253	*
311B	Kalkaska sand, 0 to 6 percent slopes, very deep water table, burned	1.727	0.3
		•	0.3
311D	Kalkaska sand, 6 to 15 percent slopes, very deep water table, burned	241	!
312B	Islandlake sand, 0 to 6 percent slopes, burned	1,241	0.2
312D	Islandlake sand, 6 to 15 percent slopes, burned	323	*
313B	Kalkaska sand, 0 to 6 percent slopes, deep water table, burned	413	*
314B	Blue Lake loamy sand, 0 to 6 percent slopes, very deep water table, burned	48	*
315B	Blue Lake loamy sand, 0 to 6 percent slopes, deep water table, burned	164	*
316B	Blue Lake loamy sand, 0 to 6 percent slopes, burned	162	*
316D	Blue Lake loamy sand, 6 to 15 percent slopes, burned	14	*
317B	Kalkaska sand, 0 to 6 percent slopes, very deep water table	3,613	0.6
317D	Kalkaska sand, 6 to 15 percent slopes, very deep water table	594	*
318B	Islandlake sand, 0 to 6 percent slopes, very deep water table	268	*
318D	Islandlake sand, 6 to 15 percent slopes, very deep water table	71	*
319B	Islandlake sand, 0 to 6 percent slopes	901	0.1
319D	Islandlake sand, 6 to 15 percent slopes	2,777	0.5
319E	Islandlake sand, 15 to 35 percent slopes	1,555	0.3
319F	Islandlake sand, 35 to 60 percent slopes	508	*
320B	Kalkaska sand, 0 to 6 percent slopes, deep water table	1,582	0.3
321B	Kalkaska-Deerton sands, 0 to 6 percent slopes	745	0.1
321D	Kalkaska-Deerton sands, 6 to 15 percent slopes	444	*
	Water		!
M	water  	21,093	3.5
	Total	606,887	100.0

<sup>\*</sup> Less than 0.1 percent.

Table 5.--Land Capability and Yields per Acre of Crops

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	  Alfalfa hay 	  Grass-legume    hay	Oats
		Tons	Tons	Bu
10  Beaches	8	   	     	
11C  Deer Park	7s	   	 	
11E  Deer Park	7s	   	    	
11F  Deer Park	7s	   	 	
12B Rubicon	6s	   	 	
12D Rubicon	7s	   	     	
12E Rubicon	7s	   		
13B Kalkaska	4s	   	 	
13D Kalkaska	6s	   	 	
13E Kalkaska	7s	   	 	
15A Croswell	4s	   	    	
16A Paquin	6s	   	 	
17A Au Gres	4w	   	    	
18 Kinross	6w	   	    	
19  Deford	5w	   	    	
21A    Ingalls	3w	   	    	
24B  Munising	2e	   3.0 	2.6   	70
25B Munising Yalmer	2e 2e	   3.0 	2.6   	70
25D  Munising  Yalmer	4e 4e	   2.8   	2.5   	60

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass-legume    hay	Oats
		Tons	Tons	Bu
31D  Trenary	3e	3.0	2.8   	70
33 Ensley	5w	   		
  35B  	2e	   3.5 	   2.6   	70
Yalmer  Frohling	4s 2e	<u> </u> 		
37B  Grand Sable	2e	   3.0 	2.3   	70
37E  Grand Sable	6e	   	 	
38B	5w			
Towes	3w 4s	   		
Waiska	5w	   	   	
46	5w	   	 	
47C  Deerton	6s	 	 	
Au Train	4s	 		
ATE	7s 6s	   	 	
48  Burt	3w	   		
49B  Cookson	2e	2.8	2.6	60
51  Nahma	5w	   	     	
Ruse      52B	7w 2e	   		
Summerville		 		
57	6w 6w 6w	     	       	
58 Dawson Greenwood	7w 7w	   		
Loxley	7w	İ	į į	

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay 	Grass-legume    hay	Oats
		Tons	Tons	Bu
Chippeny	6w		į į	
Nahma	5w			
Histosols	8w	İ	i i	
Aquents	8w	İ	i i	
61.				
Pits				
62F.				
Udipsamments and Udorthents				
į		İ	į į	
64B    Kiva	2e	3.0	2.4	70
64D	3e	2.8	2.2	60
Kiva				
65D			i i	
Jeske	4w			
Gongeau	5w			
Deerton	6s			
65 <b>F</b>				
Jeske	4w			
Gongeau	5w			
Deerton	7 s			
  66D				
Ruse	5w			
Ensign	3w			
Nykanen	4e			
  66 <b>F</b>				
Ruse	5w	İ	i i	
Ensign	3w		į į	
Nykanen	7e			
 68.				
Pits, quarry		İ	į į	
  69B	3s	3.0	2.5	70
Escanaba				
   71A				
Evart	7w			
Sturgeon	5w		i i	
72E    Deerton	7s			
Tokiahok	7s 7e	I I		
Trout Bay	/ e 6 w			
I			į į	
72F				
Deerton	7s			
Tokiahok  Trout Bay	7e			
	6w	1	i l	

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay 	Grass-legume    hay	Oats
		Tons	Tons	Bu
76C				
Garlic	6s			
Blue Lake	3e	 	1	
Voelker	3e		i	
		İ	i i	
76E			i i	
Garlic	7 s			
Blue Lake	6e			
Voelker	6e		[ [	
7.CP				
76F    Garlic	7 s			
Blue Lake	7 s 7 e	1		
Voelker	7e 7e			
Vocinci	, c			
77в				
Garlic	6s	İ	į į	
Blue Lake	3s		i i	
Voelker	3s		i i	
		!	<u> </u>	
77D				
Garlic	6 s		!	
Blue Lake	3 e			
Voelker	4e			
77E		 		
Garlic	7s			
Blue Lake	6e			
Voelker	7e	l I	i i	
100202	, ,		i	
88			i i	
Cathro	6w		į į	
Ensley	5w			
			[ [	
93	_			
Tawas	6w			
Deford	5w	 		
95B	3s			
Liminga			i i	
i		İ	i i	
104C	3 e	4.0	3.0	80
Fence				
109D	_			
Rousseau	4e			
Dawson	8w	I I		
   109F				
Rousseau	7e			
Dawson	8w	İ	į i	
j		j	i i	
125B		j	i i	
Stutts	4 e			
Kalkaska	3s	!	İ I	
125D				
Stutts	4e			
Kalkaska	3s	 		
125E				
Stutts	4e			
Kalkaska	3s			
	25	T.	1	

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	İ	Grass-legume    hay	Oats
		Tons	Tons	Bu
  L35B				
Munising	2e	İ	i i	
Ensley	5w	į	į į	
   45C				
Munising	6s	i	i i	
Yalmer	6s		i i	
   L46B				
Munising	4e			
Skanee	4w			
Skanee	4w			
Gay	5w			
L48B    Shoepac	3s			
Ensley	5w			
 			i i	
Zeba	2			
Jacobsville	3s 5w			
		į		
L57B				
Reade  Nahma	2e 5w			
		İ	i i	
L58C	2 -			
Munising  Abbaye	3e 3e			
j		İ	i i	
L60B				
Paquin	6s			
Finch	4w			
L61B			i i	
Yellowdog	6s			
Buckroe	68			
  L65B				
Chocolay	6s			
Waiska	4s			
 	7w			
Skandia		į	į į	
Skandia	7w	İ		
Jacobsville			į i	
 	6s			
Chocolay	75			
 	6-2			
.71B    Paavola	6s			
		İ	į į	
.72D				
Buckroe  Rock outcrop	7s			
	8	1		

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass-legume    hay	Oats	
		Tons	Tons	Bu	
L72F		 			
Buckroe	7s		i i		
Rock outcrop	8	İ	i i		
			į į		
176B    Croswell	4s				
Kinross	6w		i i		
İ		İ	i i		
181E					
Frohling  Tokiahok	7s 7s	 			
TORTAHOK	75		i i		
185B	6s	3.0	2.3	60	
McMaster		!	į į		
186B	3s	3.0	2.8	65	
Chatham	35	]	2.0	0.	
		İ	i i		
186D	6s	2.8	2.6	60	
Chatham					
187B	2e	2.8	2.3	65	
Reade		İ	į į		
188B	6s	3.5	2.8	7.0	
Eben	os	3.5	2.8	75	
			i i		
188D	6s	3.2	2.6	70	
Eben					
188E	7s	3.5	2.8		
Eben		İ	i i		
			[		
191B  Ruse	7w				
Ensign	3w		i i		
i		İ	i i		
197B		3.5	3.0	75	
Shoepac	3s				
Trenary	2e	 	}		
198B		3.0	2.5	70	
Shoepac	3s	İ	į į		
Reade	2 e		[		
200A		 		65	
Charlevoix	3w		i i		
Ensley	5w		į į		
202B	6s				
Sauxhead	បន				
i		İ	i i		
206B	6s	3.0	2.3	60	
Traunik			[ [		
206D	6s	2.8	2.2	55	
Traunik				3.	
İ		!	į į		
211B	2-				
Munising	2e 2e	 			
Abbaye	∠e	1	1		

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay 	Grass-legume    hay	Oats
		Tons	Tons	Bu
214B				
Kalkaska	4 s	İ	i i	
Blue Lake	3s	İ	i i	
214D				
214D    Kalkaska	6s			
Blue Lake	3e		i i	
		!	[ [	
214E    Kalkaska	7s			
Blue Lake	6e			
i		İ	i i	
221B				
Jeske	4w			
Au Train	4s 5w			
Gongeau				
225B	4 s		i i	
Cusino				
225D	6s			
Cusino			i i	
			]	
226B	_			
KalkaskaCusino	4s 4s			
Cusino	45			
226D			i i	
Kalkaska	6s			
Cusino	6s	!	į į	
226E				
Kalkaska	7s			
Cusino	7 s	İ	i i	
226F				
226F    Kalkaska	7s			
Cusino	7s		i i	
İ		İ	i i	
227A	4s			
Halfaday				
232B	6s		i i	
Shelldrake		!	į į	
233B				
Abbaye	2e			
Zeba	7s	İ	i i	
234A				
234A    Levasseur	7s			
Burt	7s			
İ		İ	į i	
235B				
Sauxhead	6s 7w			
Dur t	/ w			
	4s		i i	
236B				
236B Waiska			<u> </u>	
	6s			

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass-legume    hay	Oats
		Tons	Tons	Bu
237B		2.8	2.6	65
Chatham	3s	İ	i i	
Davies	5w	İ	i i	
239B				
Longrie  Shingleton	2e 4s	 		
sninglecon	45			
240F		i	i i	
Trout Bay	6w			
Gongeau				
Shingleton				
Rock outcrop	8	l I		
241				
Cathro	6w	İ	i i	
Gay	5w	[		
242B    Kalkaska	4s			
kaikaska				
242D	6s			
Kalkaska		į	į į	
	_			
242F    Kalkaska	7s			
kaikaska				
243	6w			
Markey			į į	
245B	C			
Trout Bay		l I		
Gongeau				
			i i	
246B	4s		i i	
Garlic				
246D	6s			
Garlic	0.5	 		
			i i	
246E	7s			
Garlic				
248B		3.0	2.4	70
Escanaba	3s	]	2.4	70
Greylock	2e		i i	
i		į	į į	
248D		2.8	2.2	60
Escanaba				
Greylock	3e	1		
248E				
Escanaba	7e	İ	i i	
Greylock	6e		ı i	
0.400				
249B  Sauxhead	6-			
Sauxnead  Skandia		 		
	, <del>, , ,</del>			
250B			i i	
_	_	T. Control of the Con	T. T.	
Chocolay  Jacobsville	7s			

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay 	Grass-legume    hay	Oats
		Tons	Tons	Bu
251B  Greylock	2e	3.0	2.8	60
251D  Greylock	3e	2.5	2.4	55
  252A				
Finch  Kinross	4w 6w			
  25 <b>4</b> C			 	
Kalkaska  Blue Lake	6s 3e	 	i i I i	
Kalkaska	7 s	i	i i	
Blue Lake	6e			
254F				
Kalkaska  Blue Lake	7s 7e			
Blue Lake	/ e			
255D    Wallace	4s	i	i i	
  256B	3s		 	
Whitewash				
  266A				
Spot  Finch	5w 4w	 		
   267A    Finch	4w	   	 	
  268C				
Munising	3e	İ	i i	
Frohling  Cookson	3e 3e		 	
   269E				
Frohling	6e	į	į į	
Garlic  Cookson	7s 6e		 	
272C		j 	 	
Munising	3e		 	
Yalmer	4s	!	į į	
Frohling	3e	 		
275B		3.2	2.8	70
Munising  Cookson	2e 2e			
COOKSOII	∠e			
281E  Mongo	7e	i !		
  282B				
Furlong	4s	i	i i	
Shingleton	4s			

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	<u>i</u>	Grass-legume    hay	Oats
ļ		Tons	Tons	Bu
82D		i	i i	
Furlong	4e			
Shingleton	6s	!	!	
84B				
Steuben	3s			
Blue Lake	3s		i i	
Kalkaska	4s	İ	i i	
Steuben	4e			
Blue Lake	4e			
Kalkaska	6s		;	
			!	
84E  Steuben	6e			
Blue Lake	6e			
Kalkaska	7s			
<u> </u>			ļ į	
85B	4 -			
Halfaday  Kinross	4s 6w	 		
KINIOSS	OW		;	
86B		3.2	2.8	70
Greylock	2e			
Cookson	2e			
  87B				
McMaster	6s	j	į į	
Davies	5w		!	
Namur	6s	i		
Ruse	7w	İ	i i	
92B	2e			
Mashek				
96D		i	i i	
Islandlake	6s			
McMillan	4e			
Islandlake	6e			
McMillan	6e	İ	į į	
	_		ļ į	
97B	6s			
Rubicon				
97D	7s	i		
Rubicon		!	į i	
Wurtsmith	4s			
Deford	5w		i i	
	_		ļ į	
99F  Shelldrake	7s			
PHETIMIAVE				
00F			i i	
Shelldrake	7s		i i	

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass-legume	Oats
		Tons	Tons	Bu
2017	1			
301F				
Cookson	6e			
Nykanen	7e	 	 	
302B	 			
Dillingham	4s	İ	İ	
Kalkaska	4s	İ	j	
		ļ		
302D				
Dillingham	6s	!		
Kalkaska	6s			
302E	 		 	
Dillingham	   7s		 	
Kalkaska	7s		 	
		i		
302F	İ	j	i i	
Dillingham	7s			
Kalkaska	7s	Į.		
2025				60
303B		3.0	2.8	60
Kiva	2e	1		
Trenary	2e 		 	
303D		2.8	2.6	55
Kiva	4e	İ	İ	
Trenary	3e	İ	j	
		ļ		
303E				
Kiva	7e			
Trenary	7e	l I	 	
305B	 			
Wurtsmith	4s	i		
Meehan	4w	į	j	
		ļ		
306C				
Deerton	6s			
Tokiahok	6e			
Jeske	] 3e	 	 	
307B	   6s			
Rubicon		i		
	İ	İ	j	
307D	7s			
Rubicon				
308B	 	 	 	
Rubicon	   6s			
Sultz				
Suitz	35 	 	 	
308D				
Rubicon	6s	i		
Sultz		i	į	
		İ	j	
309B	6s	j	i i	
Rubicon		[	ļ i	
	_	ļ		
309D	7s			
Rubicon	 			
310B	   4s	 	 	
Kalkaska	19			
	! 	i		
	1	1		1

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	İ	Grass-legume    hay	Oats
		Tons	Tons	Bu
310D  Kalkaska	6s	   	     	
310E	7e	   	     	
311B Kalkaska	4s	   	 	
311DKalkaska	6s	   	    	
312B  Islandlake	4s	   	    	
312D  Islandlake	6s	   	 	
313B Kalkaska	4s	   	     	
314B Blue Lake	3s	   	     	
315B Blue Lake	3s	   	 	
316B Blue Lake	3s	   	 	
316D Blue Lake	3e	   	    	
317B Kalkaska	4s	   	    	
317D Kalkaska	6s	   	     	
318B Islandlake	4s	   	 	
318D Islandlake	6s	   	    	
319B Islandlake	4s	   	    	
319D Islandlake	6s	   	     	
319E    Islandlake	6e	   	     	
319F    Islandlake	7e	   	     	
320B Kalkaska	4s	   	     	
321B Kalkaska Deerton	4s 4s	   	 	

Table 5.--Land Capability and Yields per Acre of Crops--Continued

		1		
Map symbol	Land	Alfalfa hay	Grass-legume	Oats
and soil name	capability		hay	
		Tons	Tons	Bu
321D				
Kalkaska	6s			
Deerton	6s			

#### Table 6.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name					
21A						
31D	Trenary silt loam, 6 to 15 percent slopes					
33	Ensley muck (where drained)					
49B	Cookson fine sandy loam, 1 to 6 percent slopes					
148B	Shoepac-Ensley complex, 0 to 6 percent slopes (where drained)					
197B	Shoepac-Trenary silt loams, 1 to 6 percent slopes					
198B	Shoepac-Reade silt loams, 1 to 4 percent slopes					
200A	Charlevoix-Ensley complex, 0 to 3 percent slopes (where drained)					
237B	Chatham-Davies complex, 0 to 6 percent slopes (where drained)					
251B	Greylock fine sandy loam, 1 to 6 percent slopes					
303B	Kiva-Trenary fine sandy loams, 1 to 6 percent slopes					
303D	Kiva-Trenary fine sandy loams, 6 to 15 percent slopes					

Table 7.--Forestland Management and Productivity

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for further explanation of ratings in this table)

			   		Potential prod	Potential productivity		
Map symbol and soil name	   Erosion   hazard 		   Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
10. Beaches	     		     	     	 	     	     	     
11C: Deer Park	    Slight	    Well suited	    Slight	  Moderate:	  Black cherry	   	   	    Jack pine, red
		į	ĺ	Droughty	Eastern white pine			pine.
					Jack pine		57	
					Northern red oak			
					Paper birch			
					Quaking aspen   Red pine		   64	
115						ĺ		
11E: Deer Park	  Slight	Poorly	  Slight	  Moderate:	Black cherry	 	 	  Jack pine, red
		suited:	[	Droughty	Eastern white pine			pine.
		Slope			Jack pine		57	
		ļ			Northern red oak			
	l I	l I	l I	 	Paper birch   Quaking aspen		 	l I
					Red pine		64	
11F:	 		 		 	[ [	 	 
Deer Park	Slight	Unsuited:	Slight	Moderate:	Black cherry			Jack pine, red
		Slope		Droughty	Eastern white pine			pine.
		ļ			Jack pine		57	
					Northern red oak			
	 	l I	l I	l I	Paper birch   Quaking aspen		 	 
					Red pine		64	
12B:	 		 			 	 	 
Rubicon	Slight	Well suited	Slight	Moderate:	Bigtooth aspen		75	Eastern white
				Droughty	Eastern white pine	1	75	pine, jack
	l I	l I	l I	 	Jack pine   Northern red oak		73 	pine, red pine.
	 		 	I I	Paper birch		 	pine.
	İ		i		Quaking aspen		64	İ
	İ	İ	İ	İ	Red maple		36	İ
	 				Red pine	53	82	
12D:			! 					
Rubicon	Slight	Well suited	Slight	Moderate:	Bigtooth aspen		75	Eastern white
				Droughty	Eastern white pine		75	pine, jack
			 		Jack pine		73 	pine, red
	I I	I I	I I	1	Northern red oak  Paper birch		 	pine.
					Quaking aspen		64	
	İ	i	İ	i	Red maple		36	İ
		1						

Table 7.--Forestland Management and Productivity--Continued

	   		 	İ	uctivity			
Map symbol and soil name		Site  preparation 	Windthrow   hazard 	, ,	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
12E:	 		 			 	 	 
Rubicon	  Slight	Poorly	Slight	  Moderate:	Bigtooth aspen	66	75	  Eastern white
11002001		suited:		Droughty	Eastern white pine		75	pine, jack
	İ	Slope	İ		Jack pine			pine, red
	İ		i	i	Northern red oak			pine.
	İ		İ	i	Paper birch			i -
	İ		İ	i	Quaking aspen	60	64	İ
	İ		İ	i	Red maple			İ
	İ		İ		Red pine	53	82	İ
13B:	 					 		 
Kalkaska	Slight	  Well suited	Slight	  Moderate:	American beech			  Eastern white
				Droughty	Bigtooth aspen			pine, red
					Eastern white pine			pine.
					Paper birch			
					Quaking aspen			
					Red maple			
					Red pine	73	136	
					Sugar maple	60	38	
13D:	 					 	 	 
Kalkaska	Slight	Well suited	Slight	Moderate:	American beech	j	j	Eastern white
				Droughty	Bigtooth aspen			pine, red
					Eastern white pine			pine.
					Paper birch			
					Quaking aspen			
					Red maple			
					Red pine	73	136	
					Sugar maple	60	38	
13E:							 	 
Kalkaska	Slight	Poorly	Slight	Moderate:	American beech			Eastern white
		suited:	!	Droughty	Bigtooth aspen			pine, red
		Slope			Eastern white pine			pine.
					Paper birch			
					Quaking aspen			
					Red maple			
					Red pine		136	
	 		 		Sugar maple	60 	38 	 
15A:	į	į	į		į	į	į	İ
Croswell	Slight	Well suited		Low	Bigtooth aspen		86	Eastern white
	!	!	Wetness	İ	Eastern white pine			pine, red
	!	ļ.	!	İ	Jack pine	53	72	pine, white
	!	ļ.	!	İ	Northern red oak			spruce.
	!	ļ	ļ.	ļ	Paper birch		57	<u> </u>
					Quaking aspen			
			ļ.		Red maple			
				1	Red pine	55	86	

Table 7.--Forestland Management and Productivity--Continued

	   		   Windthrow   hazard 		Potential prod	uctivi	ty	
Map symbol and soil name	   Erosion   hazard 	Site  preparation  		Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
16A:	 				 	 	 	 
Paquin	  Slight	  Well suited	Moderate:	Moderate:	American beech		 	Eastern white
raquin	 	HOII BUICCU	Wetness	Droughty	Black cherry		 	pine, red
	! 		Weenebb	Dioagney	Eastern hemlock		 	pine, white
	! 	i		i	Eastern white pine		1	spruce.
	! 	i		i	Quaking aspen		 	522000
	İ	i		i	Red maple		40	 
	İ	i		i	Red pine			 
	İ	i		i	Sugar maple			! 
					Yellow birch			
17A:	 					 	 	
Au Gres	Slight	Well suited	Moderate:	High:	Balsam fir		72	Eastern white
			Wetness	Wetness	Eastern hemlock		86	pine, red
					Eastern white pine			pine,
					Jack pine	51	69	tamarack,
					Quaking aspen		57	white spruce
					Red maple		29	
				Red pine	61	104	 	
L8:	 							 
Kinross	Slight	Well suited	Severe:	High:	Balsam fir			
			Wetness	Wetness	Black spruce			
					Eastern white pine			
					Jack pine			
					Northern white-cedar			
					Paper birch			
					Quaking aspen		32	
	 				Red maple		 	
				İ				
l9: Deford	  Slight	  Well suited	Severe:	  High:	  Balsam fir	 	 	Tamarack.
			Wetness	Wetness	Black ash			
					Eastern hemlock			
					Northern white-cedar			
					Paper birch			
					Quaking aspen	66	57	
	 				Red maple		 	
21A:					j	İ		
Ingalls	Slight	Well suited		High:	Balsam fir			Eastern white
			Wetness	Wetness	Eastern hemlock			pine,
				1	Eastern white pine		99	tamarack,
				1	Paper birch		55	white spruce
				1	Quaking aspen		64	
	 	1		1	Red maple		36	 
	 			1	Red pine		90	  -
	I	1		1	White spruce			I .

Table 7.--Forestland Management and Productivity--Continued

	    -	İ	   Windthrow   hazard 	   Seedling   mortality	Potential produ	ty		
Map symbol and soil name	Erosion hazard	Site  preparation 			Common trees		  Volume  of wood  fiber*	Suggested trees to plant
24B:	 		 			 	 	
Munising	Slight	Poorly	Severe:	High:	American beech		i	Eastern white
-	İ	suited:	Rooting	Wetness	Balsam fir		i	pine, red
	İ	Wetness	depth	İ	Bigtooth aspen		i	pine,
	İ	į	Wetness	İ	Eastern hemlock		i	tamarack,
	İ	į	İ	İ	Eastern white pine		i	white spruce
	İ	į	İ	İ	Paper birch		i	_
	İ	į	İ	İ	Quaking aspen		i	
	İ	į	İ	İ	Red maple		i	
	İ	į	İ	İ	Sugar maple	61	38	
	İ	į	İ	İ	White spruce		i	
	İ	į	İ	İ	Yellow birch	i	i	
	İ	İ	İ	İ		İ	İ	
25B:	İ	j	İ	İ		j	į	
Munising	Slight	Poorly	Severe:	High:	American beech			Eastern white
		suited:	Rooting	Wetness	Balsam fir			pine, red
		Wetness	depth		Bigtooth aspen			pine,
			Wetness		Eastern hemlock			tamarack,
					Eastern white pine			white spruce.
		İ		İ	Paper birch			
					Quaking aspen			
					Red maple			
				İ	Sugar maple	61	38	
		İ		İ	White spruce			
			!	!	Yellow birch			
Yalmer	  Slight	  Poorly	  Severe:	  High:	American beech	 	 	  Eastern white
raimer	SIIGHC	suited:	Rooting	Droughty	Balsam fir			pine, red
	 	Wetness	depth	Wetness	Bigtooth aspen		1	pine,
	i I		Wetness		Eastern hemlock			tamarack,
	i I			i	Eastern white pine			white spruce.
	i I	i		i	Paper birch			
	İ	İ	İ	İ	Quaking aspen			
	İ	į	İ	İ	Red maple		i	
	İ	į	İ	İ	Sugar maple	61	38	
		İ		İ	White spruce			
			l	ļ	Yellow birch			
						ļ		
25D:	  Cliab+	  Boorles	Gorana	  Wigh:	American beech	 	 	  Eastern white
Munising	  erranc	Poorly   suited:	Severe:   Rooting	High:   Wetness	Balsam fir			pine, red
	 	Wetness	depth	Heches	Bigtooth aspen	!	!	pine, red   pine,
	1 	Mecriess	Wetness		Eastern hemlock			tamarack,
	i I				Eastern white pine			white spruce.
	İ		İ	İ	Paper birch			
	İ		İ	İ	Quaking aspen		 	
	İ		İ	İ	Red maple		1	
	İ		İ	İ	Sugar maple		38	
	İ	i	İ	i	White spruce			
	İ	i	İ	i	Yellow birch			
		1		The second secon	1	1	1	

Table 7.--Forestland Management and Productivity--Continued

	 	   Site  preparation 	   Windthrow   hazard 	   Seedling   mortality	Potential productivity			
Map symbol and soil name	Erosion   hazard 				Common trees		  Volume  of wood  fiber*	Suggested trees to plant
25D:	 		 		 	 	 	 
Yalmer	Slight 	Poorly suited:	Severe:	High: Droughty	American beech  Balsam fir			Eastern white pine, red
	 	Wetness	depth Wetness	Wetness	Bigtooth aspen  Eastern hemlock		 	pine, tamarack,
	ĺ	İ	ĺ	İ	Eastern white pine			white spruce
					Paper birch			
			[		Quaking aspen			
					Red maple			
					Sugar maple	61	38	
					White spruce			
	 		 		Yellow birch	 	 	 
31D:	    cliabe	  Well quited	Clicht	Low	  Sugar maple	   61	     38	    Eastern white
Trenary	SIIGHU	Well suited	SIIGHC	LTOM	Eastern hemlock		30 	pine, red
	 		 		Yellow birch		38	pine, red
	 		 	i i	Red maple		30 	tamarack,
	! 	i	! [	İ	White spruce		 	white spruce.
	! 	i	İ	i	Balsam fir		 	
	İ	i	İ	i	American basswood		59	 
	İ	i	<u> </u>	i	White ash			
	į	į	İ	į	Quaking aspen	ļ		
33:	 		 			 	 	 
Ensley	Slight	Well suited	1	High:	Balsam fir		114	
			Wetness	Wetness	Black ash			
		ļ		!	Eastern arborvitae			
		ļ			Eastern hemlock			
					Red maple		43	
	 				White spruce   Yellow birch		 	 
35B:	 		 		 	 	 	 
Munising	Slight	Poorly	Moderate:	High:	Balsam fir	1		Eastern white
		suited:	Wetness	Wetness	Basswood	1		pine, red
		Wetness			Bigtooth aspen		 	pine,
	l I		l I	I I	Eastern hemlock		 	tamarack,   white spruce.
	l I	ļ	l I	I I	Eastern white pine		 	white spidce.
					Quaking aspen	78	91	
					Red maple			
	 				Sugar maple   Yellow birch		41 	 
Yalmer	    cliabe	Doomles	Modernto	     High:	 	j 	   	    Eastern white
TOTIMET 3	DIIGHE	Poorly suited:	Moderate:	High: Wetness	Basswood		 	pine, red
	! 	Wetness		Droughty	Bigtooth aspen		 	pine, red
	 		İ		Eastern hemlock			tamarack,
	İ	i	İ	i	Eastern hophornbeam	 	 	white spruce.
	İ	i	į	i	Eastern white pine	1		
	į	i	į	i	Quaking aspen		91	İ
								:
					Red maple			
	 		 		Red maple		   41	

Table 7.--Forestland Management and Productivity--Continued

			   Windthrow   hazard 	   Seedling   mortality 	Potential produ	uctivi	ty	   
Map symbol and soil name	   Erosion   hazard 	Site  preparation 			   Common trees		Volume of wood	Suggested trees to plant
35B:	[		 		 	l I		
Frohling	Slight	Well suited	Severe:	Low	Balsam fir			Eastern white
-	i	į	Rooting	i	Basswood	j		pine, red
	İ	j	depth	İ	Bigtooth aspen	j		pine,
	İ	j	İ	İ	Eastern hemlock			tamarack,
	ĺ	İ	ĺ	İ	Eastern hophornbeam			white spruce
					Eastern white pine			
					Quaking aspen	78	91	
					Red maple			
					Sugar maple	66	41	
	 		 		Yellow birch	 		 
37B: Grand Sable	Climbe	  Well suited	Clicht	Low	American beech	 		    Eastern white
Grand Sabre	BIIGHT	Well Suited	bilgiic	HOW	Balsam fir			pine, red
			l I		Basswood			pine, red   pine,
			I I		Bigtooth aspen			tamarack,
		l I	l I		Eastern hemlock			white spruce
	i		l I		Eastern hophornbeam			white bpidee
	İ		l I		Eastern white pine			l I
	İ		i I		Quaking aspen		!	! 
	İ		i I		Red maple			! 
	i		İ	i	Sugar maple			İ
	į			į	Yellow birch			į
37E:	 		 		 	 		 
Grand Sable	Slight	Poorly	Slight	Low	American beech			Eastern white
	ĺ	suited:	ĺ	İ	Balsam fir			pine, red
	[	Slope			Basswood			pine,
	[				Bigtooth aspen			tamarack,
					Eastern hemlock			white spruce
					Eastern hophornbeam			
					Eastern white pine			
					Quaking aspen			
					Red maple			
	 		 		Sugar maple   Yellow birch		40	 
38B:	 		 		] ]	 		 
Rhody	Slight	Poorly	Severe:	High:	Arborvitae			
=	İ	suited:	Wetness	Wetness	Balsam fir			İ
	I	Wetness			Black ash		i	
	[				Eastern white pine		j	
	[				Paper birch			
	[				Red maple			
	[				Speckled alder			
	1				Striped maple			
	[				Sugar maple			
	[				White spruce			
	1				Yellow birch			i .

Table 7.--Forestland Management and Productivity--Continued

	 	į	   Windthrow   hazard	   Seedling   mortality	Potential produ	uctivi	ty	
Map symbol and soil name	Erosion   hazard 	Site  preparation 			Common trees		  Volume  of wood  fiber*	Suggested trees to plant
38B:			 			 		
Towes	Slight	Well suited	Moderate:	High:	Arborvitae			Eastern white
			Wetness	Wetness	Balsam fir			pine,
			Rooting		Black ash			tamarack,
	!	ļ	depth	!	Eastern white pine			white spruce
					Paper birch			
		ļ			Red maple			
		ļ			Striped maple			
		ļ			Sugar maple			
		ļ	l I		White spruce		 	 
					Yellow birch	 	 	 
10B:				 	 			
Waiska	Slight	Poorly	Slight	Moderate:	American beech	:	 	Eastern white
		suited:	l I	Droughty	Balsam fir   Eastern hemlock	 	 	pine, red
	I I	fragments	l I	I I	Paper birch		 	pine, tamarack,
	1	Tragments	 		Quaking aspen		82	white spruce
	1		 		Red maple			white spidce
	 		 		Sugar maple		38	 
i i			İ	Yellow birch			 	
10								
l2: Davies	  Slight	Poorly	  Severe:	  High:	  Balsam fir	   54	   105	 
	i	suited:	Wetness	Wetness	Black ash	i		
	į	Rock	İ	İ	Eastern arborvitae	i		İ
	İ	fragments	İ	İ	Eastern hemlock			İ
	İ	ĺ	ĺ	İ	Paper birch			
					Red maple	55	35	
					White spruce			
	 				Yellow birch	 	 	 
46:	į		į	į		į		
Jacobsville	Slight	Well suited	1	High:	Arborvitae			
			Wetness	Wetness	Balsam fir			
		ļ	l I		Black ash   Eastern hemlock		35 	 
	I I		l I	I I	Paper birch		 	 
			 		Quaking aspen			 
			! [		Red maple		 	 
	İ	i	İ	İ	White spruce		 	! 
	İ	İ		İ	Yellow birch			İ
47C:							! 	
Deerton	Slight	Well suited	Moderate:	Low	American beech			Eastern white
			Rooting		Bigtooth aspen			pine,
	[		depth	1	Eastern hemlock			tamarack,
	ļ	ļ	!	ļ.	Eastern white pine		:	white spruce
	ļ	ļ	!	ļ.	Paper birch			!
	İ		<u> </u>	ļ.	Quaking aspen		:	
	ļ			1	Red maple			
			Į.		Sugar maple		:	
	1	1	I .	1	Yellow birch			I

Table 7.--Forestland Management and Productivity--Continued

	   		   Windthrow   hazard	Seedling   mortality	Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion hazard	Site  preparation			Common trees		  Volume  of wood  fiber*	Suggested trees to plant
47C:	 		 			 	 	
Au Train	Slight	Well suited	Severe:	High:	American beech			Eastern white
			Rooting	Wetness	Bigtooth aspen			pine,
			depth	Droughty	Eastern hemlock			tamarack,
			Wetness		Eastern white pine			white spruce
		ļ		!	Paper birch			
					Quaking aspen			
					Red maple			
					Sugar maple		!	
			 		Yellow birch	 	 	 
47E:		İ				į	į	
Deerton	Slight	Poorly	Moderate:	Low	American beech			Eastern white
		suited:	Rooting		Bigtooth aspen			pine,
		Slope	depth	!	Eastern hemlock		!	tamarack,
				!	Eastern white pine			white spruce
					Paper birch			
					Quaking aspen			
					Red maple			
					Sugar maple			
	 		 		Yellow birch	 	 	 
Au Train	Au Train Slight   Well	Well suited		High:	American beech			Eastern white
			Rooting	Wetness	Bigtooth aspen			pine,
		ļ	depth	Droughty	Eastern hemlock			tamarack,
		ļ	Wetness	!	Eastern white pine			white spruce
				!	Paper birch			
					Quaking aspen			
					Red maple			
	 		 		Sugar maple		40	 
							Ì	
48: Burt	  Slight	  Well suited	Severe	  High:	  Balsam fir	   45	 	 
Durc			Wetness	Wetness	Black spruce		1	 
	İ		Rooting		Eastern arborvitae			! 
	i	i	depth		Eastern hemlock			 
	İ	i	İ	İ	Paper birch			! 
	İ	į	İ	İ	Quaking aspen			
	į	į		į	Red maple	ļ	ļ	
49B:	 		 			 	 	 
Cookson	Slight	Well suited	Slight	Low	Balsam fir			Eastern white
	!	ļ			Basswood			pine,
					Bigtooth aspen			tamarack,
					Eastern hemlock			white spruce
	Į.				Eastern hophornbeam			
	Į.				Eastern white pine			
	ļ		  -		Quaking aspen		91	 
	I I	l I	 	1	Red maple			 
	I I	I I	l I	1	Sugar maple   Yellow birch		!	 
	I	1	I	1	retrow Ditcu			I

Table 7.--Forestland Management and Productivity--Continued

	   		   	Seedling   mortality	Potential produ	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 		Common trees		  Volume  of wood  fiber*	Suggested trees to plant
51:	 		 			 	 	
Nahma	Slight 	Well suited	Severe:   Wetness	High:   Wetness	Balsam fir   Balsam poplar	1	57 	 
					Black ash			
	1		l I	1	Eastern hemlock    Northern white-cedar		 	 
			 		Paper birch	1	 	 
			! [	İ	Quaking aspen	1		
	i		İ	i	Red maple			
	į	İ	  -		Yellow birch	ļ		
Ruse	  Slight	Poorly	  Severe:	  High:	Balsam fir	40	   71	
		suited:	Wetness	Wetness	Balsam poplar			
	[	Wetness	Rooting	Į.	Black ash	1		
	!		depth	!	Eastern hemlock	1		
					Northern white-cedar			
	l I		l I	I I	Paper birch   Quaking aspen	1	 	
	 		 		Red maple			[ ]
į				Yellow birch				
52B:		l 					 	 
Summerville	Slight	Well suited	Severe:	Low	American beech			Eastern white
	[		Rooting		Balsam fir	1		pine,
	!		depth	!	Basswood	1		tamarack,
					Bigtooth aspen   Eastern hemlock		 	white spruce
			 		Eastern hophornbeam		 	 
	İ	İ	İ	ì	Eastern white pine		 	
	i	i	İ	İ	Quaking aspen		91	
	İ	j	į	į	Red maple			
	 		 		Sugar maple  Yellow birch		41 	 
57:	İ		į			<u> </u>	į	
Carbondale	  Slight	  Poorly	  Severe:	  High:	  Balsam fir	40	   71	 
	İ	suited:	Wetness	Wetness	Black spruce	15	23	
		Wetness	 		Northern white cedar		 	 
Lupton	Slight	Poorly	Severe:	High:	Balsam fir			
	!	suited:	Wetness	Wetness	Black spruce	1		
		Wetness			Northern white cedar			
	l I		 	I I	Paper birch		 	
					Tamarack			
Tawas	  Slight	Poorly	  Severe:	  High:	  Balsam fir	 	 	 
	3	suited:	Wetness	Wetness	Black spruce	:	23	
	į	Wetness	į	į	Northern white cedar		59	
58:	[ 		 				! 	[ 
Dawson	Slight	Unsuited:	Severe:	High:	Black spruce	15	23	
		Wetness	Wetness	Wetness	Tamarack			
Greenwood	  Slight	  Unsuited:	  Severe:	  High:	Black spruce	   15	   23	 
J_ COM#004 - 3 - 1		Wetness	Wetness	Wetness	Tamarack		23	

Table 7.--Forestland Management and Productivity--Continued

	  -	į	   Windthrow   hazard 	   Seedling   mortality 	Potential produ			
Map symbol and soil name	Erosion hazard	Site  preparation  			Common trees		  Volume  of wood  fiber*	Suggested trees to plant
58:	 		 			 	[ [	
Loxley	Slight 	Unsuited:	Severe:   Wetness	High:   Wetness	Black spruce   Tamarack		23	
59:		i					İ	
Chippeny	Slight	Well suited	!	High:	Balsam fir		60	
			Wetness	Wetness	Balsam poplar			
		Rooting		Black ash				
			depth		Eastern white pine			
					Northern white-cedar		51	
					Paper birch			
					Red maple			
					White spruce			
	 	I	 		Yellow birch	 		
Nahma	Slight	  Well suited	  Severe:	  High:	Balsam fir	35	57	
			Wetness	Wetness	Balsam poplar			
					Black ash			
					Eastern hemlock			
					Northern white-cedar			
					Paper birch			
					Quaking aspen			
					Red maple			
					Yellow birch			
00. Histosols and Aquents	       	     	       	     	 	       	     	
1. Pits	   		   		 	   	   	
2F. Udipsamments and	   		     	   	 	     	     	
Udorthents	   		   		 	   	   	
4B:								
Kiva	Slight	Well suited	Slight	Low	American beech	j	i	Eastern whit
					Balsam fir			pine, red
					Basswood			pine,
					Bigtooth aspen			tamarack,
					Eastern hemlock			white sprud
					Eastern hophornbeam			
					Eastern white pine			
					Quaking aspen		91	
					Red maple			
	 		 		Sugar maple   Yellow birch		41 	
	!	!	I	1	TETTOM DITCH			

Table 7.--Forestland Management and Productivity--Continued

			   Windthrow   hazard 	Seedling   mortality	Potential produ	ty		
Map symbol and soil name	   Erosion   hazard 	Site  preparation  			   Common trees		  Volume  of wood  fiber*	Suggested trees to plant
64D:	 		 			 	 	
Kiva	Slight	Well suited	Slight	Low	American beech			Eastern white
	İ	j	ĺ	İ	Balsam fir			pine, red
	ĺ	j	ĺ	İ	Basswood			pine,
	ĺ	j	ĺ	İ	Bigtooth aspen			tamarack,
					Eastern hemlock			white spruce
					Eastern hophornbeam			
					Eastern white pine			
					Quaking aspen	78	91	
					Red maple			
					Sugar maple	66	41	
					Yellow birch			
65D:					ļ			
Jeske	Slight	Well suited	1	High:	Balsam fir			Eastern white
			Wetness	Wetness	Eastern hemlock			pine,
			Rooting	!	Eastern white pine		99	tamarack,
			depth		Paper birch		!	white spruce.
					Quaking aspen			
					Red maple			
					White spruce			
					Yellow birch			
Gongeau	  cliabe	  Poorly	  Severe:	  High:	  Balsam fir	 	 	 
Gongeau	BIIGHT	suited:	Rooting	Wetness	Eastern hemlock			 
	 	Wetness	depth	Wechess	Eastern white pine		99	 
	 	Wechess	Wetness	l I	Paper birch			 
	! 	l I	Weenebb		Quaking aspen		64	 
	l I	i	! [	İ	Red maple			 
		i	İ	i	White spruce			! 
		i	İ	i	Yellow birch			
	İ	i	İ	İ	Ì	İ	İ	İ
Deerton	Slight	Well suited	Moderate:	Low	American beech			Eastern white
			Rooting		Bigtooth aspen			pine,
			depth		Eastern hemlock			tamarack,
					Eastern white pine			white spruce.
					Paper birch			
	ļ.	ļ.	!	ļ.	Quaking aspen			
					Red maple			
			!	!	Sugar maple		38	
					Yellow birch			
CE 77		ļ.		1				
65F:	014-55	  m=11 ==25 2	   <b>G</b> = = = = :	   TT   b	  Palmam file	 	 	   Bankana   1997
Jeske	leridur	Well suited		High:	Balsam fir			Eastern white
	I I	I I	Wetness	Wetness	Eastern hemlock			pine,
	 	I I	Rooting	I I	Eastern white pine		99	tamarack,
	I I	I	depth	I I	Paper birch		55	white spruce.
	I I	I	I I	I I	Quaking aspen		64	] I
	l I	I	l I	1	Red maple		36 	] I
	l I	I	l I	1	White spruce		!	] I
	1	1	I	1	Yellow birch			I

Table 7.--Forestland Management and Productivity--Continued

		     Windthrow   hazard 		Potential productivity			 
Erosion hazard	Site  preparation 		Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
Slight	Poorly	Severe:	High:	· ·			
	1		Wetness	· ·		!	
	Wetness						
		depth					 
	I	l I	1				 
		 	1	•			 
				-			
Slight	Poorly	  Moderate:	Low	American beech	 	 	  Eastern white
	suited:	Rooting	İ	Bigtooth aspen			pine,
	Slope	depth		Eastern hemlock			tamarack,
							white spruce
			!			!	
				1 -		1	
				-			
Slight	Poorly	Severe:	High:	American beech	i	i	
	suited:	Wetness	Wetness	Arborvitae			
	Wetness	Rooting		Balsam fir			
		depth		· ·			trees to plant   Eastern white pine,
				· ·	1	!	
						!	
		 	l I		1	!	 
		 	1			1	 
		 		•			 
	i	! 					 
				-			
Slight	  Well suited	  Severe:	  High:	  American basswood	   65	   57	  Eastern white
		Rooting	Wetness	· ·		1	-
				·		1	'
		Wetness				!	white spruce
		l I	1	· ·			l I
		 	1				 
		 	1			!	 
						29	
Moderate:	  Well suited	  Severe:	  High:	· ·		 	  Eastern white
Slope		Rooting	Wetness	· ·			_
	İ	depth	!				
		Wetness		·			white spruce
		 	1			!	 
	I	 	1			!	 
		 	1			!	 
		1 				1	 
		! 		Yellow birch		<del></del>	! 
	Slight   S	Slight Poorly suited: Wetness  Slight Poorly suited: Slope  Slight Poorly suited: Wetness  Slight Well suited	Slight Poorly Severe:	Slight Poorly Severe: High: suited: Wetness Wetness Wetness Rooting depth  Slight Poorly Moderate: Low suited: Rooting Slope depth  Slight Poorly Severe: High: suited: Wetness Wetness Wetness Rooting depth  Slight Well suited Severe: High: Rooting depth Wetness  Moderate: Well suited Severe: High: Rooting depth Wetness  Moderate: Well suited Severe: High: Rooting depth Wetness  Moderate: Well suited Severe: High: Rooting depth Wetness	Slight	Slight	Slight

Table 7.--Forestland Management and Productivity--Continued

	   		 		Potential prod	uctivi	ty	  -
Map symbol and soil name	   Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 			  Volume  of wood  fiber*	Suggested trees to plant
66F:	 		 		 	[ [	 	 
Ruse	Slight	Poorly	Severe:	High:	American beech			! 
		suited:	Wetness	Wetness	Arborvitae		 	l I
	İ	Wetness	Rooting		Balsam fir			İ
	İ		depth	i	Black ash			
	İ	i		i	Eastern hemlock			<u> </u>
	İ	i	i	i	Eastern white pine			İ
	İ	i	i	i	Paper birch			İ
	İ	i	i	i	Quaking aspen			İ
	İ	i	i	i	Red maple		34	İ
	İ	i	i	i	Sugar maple			İ
	İ	i	i	i	White spruce			İ
					Yellow birch			
Ensign	  Slight	  Well suited	  Severe:	  High:	American basswood	   65	   57	  Eastern white
			Rooting	Wetness	American beech			1
	l I	i	depth	Weenebb	Balsam fir	1	 	
	l I	i	Wetness	İ	Bigtooth aspen		 	1
	 			i	Northern white-cedar		57	
	! 	l I	I I		Paper birch		57	l I
	! 	l I	I I		Quaking aspen			l I
	l I	i	! [	İ	Red pine		 	! 
		İ			Sugar maple		29	Eastern white   pine,   tamarack,   white spruce
Nykanen	Severe	Poorly	  Severe:	  High:	  Balsam fir	 	 	  Eastern white
ny nanch	Slope	suited:	Rooting	Wetness	Basswood		 	1
	blope	Slope	depth	Necinebb	Bigtooth aspen		 	
	! 	blope	Wetness		Eastern hemlock		 	1
	! 	l I	Weenebb		Eastern hophornbeam		 	white bpidee
	 		 		Eastern white pine			 
	 		 	l I	Quaking aspen			 
	 		 		Red maple			 
	! 	l I	I I		Sugar maple		40	l I
	l I	i	! [	İ	Yellow birch			! 
	l I	i	! [	İ		i	 	! 
68. Pits, quarry	   		   			   	   	   
	<u> </u>		<u> </u>			į	į	
69B: Escanaba	  Slight	  Well suited	  Slight	Low	American beech	 	 	Eastern white
				1	Balsam fir		 	pine, red
	İ	i	İ	i	Basswood			pine,
	İ	i	İ	i	Bigtooth aspen		 	tamarack,
	į	i	i	i	Eastern hemlock			white spruce
	į	i	i	i	Eastern hophornbeam			
	İ	i	İ	i	Eastern white pine			İ
	İ	i	İ	i	Quaking aspen		91	İ
	İ	i	İ	i	Red maple			İ
	İ		İ	i	Sugar maple		41	
	1		1	!			!	1
					Yellow birch			

Table 7.--Forestland Management and Productivity--Continued

	 		   		   Potential prod 	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation	Windthrow hazard	Seedling   mortality 	   Common trees	!	  Volume  of wood  fiber*	Suggested trees to plant
71A:	[							
Evart	Slight	Poorly	Severe:	High:	American elm			
		suited:	Wetness	Wetness	Arborvitae			İ
	i	Wetness			Balsam fir			İ
	i			i	Black ash			İ
	i			i	Black spruce			İ
	i	i		i	Eastern white pine			
	i			i	Green ash			İ
	i			i	Paper birch	!		İ
	i			i	Red maple			İ
	i			i	Speckled alder			İ
	i			i	Tamarack			İ
	i	i		i	White spruce			
	į	į		į	Yellow birch			İ
Sturgeon	  Slight	  Well suited	  Moderate:	  High:	American elm	 	 	  Eastern white
			Wetness	Wetness	Arborvitae			pine,
			Weenend	Weenebb	Balsam fir			tamarack,
	 	 		Black ash			white spruce	
	 	 		Eastern white pine			white bpidee	
	İ		! 		Paper birch	!		l I
	İ		! 		Red maple			l I
	İ		! 		Speckled alder			l I
	İ		! 		Sugar maple			l I
		 	 		White spruce			! 
					Yellow birch			
72E:			 					
Deerton	  Slight	Poorly	  Moderate:	Low	American beech	 	 	  Eastern white
		suited:	Rooting		Bigtooth aspen	!		pine,
	i	Slope	depth	i	Eastern hemlock			tamarack,
	i	1		i	Eastern white pine			white spruce
	i			i	Paper birch			i
	i	İ	İ	İ	Quaking aspen			İ
	i	i	İ	İ	Red maple			
	i	İ	İ	İ	Sugar maple		38	İ
	į	į		į	Yellow birch		j	İ
Tokiahok	  Slight	Poorly	  Severe:	  Moderate:	American beech	 	 	  Eastern white
		suited:	Rooting	Droughty	Balsam fir			pine, red
	i	Slope	depth		Bigtooth aspen	!		pine, red   pine,
	i	=====			Eastern hemlock			tamarack,
	İ		! 		Eastern white pine			white spruce
	ŀ		! 		Paper birch			rcc sprace
			! 		Quaking aspen			1 
			! 		Red maple			1 
	ŀ		! 		Sugar maple		38	1 
	ŀ		! 		White spruce			1 
	1		! 		Yellow birch			1 
	I I	 	I I	1	1 TOTION DITCHT			I I

Table 7.--Forestland Management and Productivity--Continued

	   	į	 		Potential prod	uctivi	ty	
Map symbol and soil name	   Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
72E:	 		 			 	 	
Trout Bay	Moderate:	Poorly	Severe:	High:	Arborvitae			i
	Slope	suited:	Wetness	Wetness	Balsam fir			i
		Wetness	Rooting		Black ash			İ
	İ	Slope	depth	i	Eastern hemlock			i
	İ			i	Eastern white pine			i
	! 		I	İ	Paper birch		 	İ
	! 		I I	İ	Quaking aspen		 	İ
	! 		I I	l l	Red maple		34	! I
į	! 		I I	l l	Sugar maple			! I
	! 		I I	l l	White spruce		 	! I
	 	l I	l I	1	Yellow birch		 	i i
72F: Deerton	  Cliabt	  Unsuited:	  Moderate:	Low	American beech	 	 	Eastern white
Deer con	Silgin	1	1	LTOM			 	pine,
	 	Slope	Rooting	1	Bigtooth aspen		 	
			depth		Eastern hemlock		!	tamarack,
					Eastern white pine		 	white spruce
					Paper birch		1	
					Quaking aspen		 	
					Red maple		   43	1
					Sugar maple		43   38	1
	 		 		Sugar maple		38 	 
	 	 			Yellow birch	 	 	 
Tokiahok	Slight	Unsuited:	Severe:	Moderate:	American beech			Eastern white
		Slope	Rooting	Droughty	Balsam fir			pine, red
			depth	!	Bigtooth aspen			pine,
			!	!	Eastern hemlock			tamarack,
					Eastern white pine			white spruce
					Paper birch			
			!	!	Quaking aspen			!
					Red maple			
					Sugar maple		38	
					White spruce			
	 		 		Yellow birch	 	 	 
Trout Bay	Moderate:	Poorly	Severe:	High:	Arborvitae			i
	Slope	suited:	Wetness	Wetness	Balsam fir			[
		Slope	Rooting		Black ash			
		Wetness	depth		Eastern hemlock			
					Eastern white pine			
					Paper birch			
					Quaking aspen			
					Red maple	54	34	
					Sugar maple			
	I				White spruce			I

Table 7.--Forestland Management and Productivity--Continued

į			    -		Potential prod	uctivii	ty	   
Map symbol and   soil name	Erosion hazard	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested   trees to   plant
76C:							 	
Garlic	Slight	Well suited	Slight	Moderate:	American beech		 	!
		l I	l I	Droughty	Bigtooth aspen Eastern hemlock		 	
			 		Eastern white pine		 	pine.
			! 		Paper birch		 	 
		i	İ	İ	Quaking aspen			
j		į	İ	İ	Red maple			İ
j		j	j	İ	Red pine	74	139	İ
					Sugar maple	62	39	
			 		Yellow birch	 		 
Blue Lake S	Slight	Well suited	Slight	Moderate:	American beech		:	Eastern white
				Droughty	Bigtooth aspen			: -
		ļ	l I		Eastern hemlock   Eastern white pine		 	pine.
			 		Paper birch		 	 
			l I		Quaking aspen		 	 
			<u> </u>		Red maple			
İ		İ	İ		Red pine		136	
İ		j	ĺ	İ	Sugar maple	60	38	ĺ
			 		Yellow birch			 
Voelker	Slight	  Well suited	  Slight	Moderate:	American beech			  Eastern white
				Droughty	Bigtooth aspen			: -
					Eastern hemlock			trees to plant      Eastern white   pine, red   pine.       Eastern white   pine, red   pine.
					Eastern white pine  Paper birch		 	 
			l I		Quaking aspen		 	 
			l I		Red maple		 	 
į		İ	İ	İ	Red pine		139	
j		į	İ	İ	Sugar maple	62	39	İ
			 		Yellow birch			
76E:								
Garlic	Slight	Poorly	Slight	Moderate:	American beech			
		suited:		Droughty	Bigtooth aspen   Eastern hemlock		 	: -
		Slobe	l I		Eastern white pine		 	pine.
			! 		Paper birch		! 	 
i			İ		Quaking aspen			İ
İ		İ	İ	İ	Red maple			
İ		j	ĺ	İ	Red pine	74	139	ĺ
					Sugar maple		39	
			 		Yellow birch	 	 	  -
Blue Lake	Slight		  Slight	Moderate:	American beech			
		suited:		Droughty	Bigtooth aspen			: -
		Slope	 		Eastern hemlock			pine.
		1	 	1	Eastern white pine		 	 
 		1	I I	 	Paper birch   Quaking aspen		 	I I
		1	! 		Red maple		 	1 
			İ		Red pine		136	
		1	1	1				1
İ					Sugar maple	60	38	

Table 7.--Forestland Management and Productivity--Continued

	   		 		Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested   trees to   plant
76E:							 	
Voelker	Slight 	Poorly suited:	Slight	Moderate: Droughty	American beech Bigtooth aspen		 	Eastern white pine, red
	! 	Slope	! 	Dioagney	Eastern hemlock		 	pine.
	İ	i	İ	İ	Eastern white pine	i		İ
					Paper birch			
		ļ		ļ	Quaking aspen			
					Red maple			
	l i	l I	 		Red pine		139   39	 
	 		 		Yellow birch		39	 
		i	 	i		i	! 	 
76F:	İ	j	İ	İ	İ	İ	İ	İ
Garlic	Slight	Unsuited:	Slight	Moderate:	American beech			Eastern white
		Slope		Droughty	Bigtooth aspen			pine, red
					Eastern hemlock		 	pine.
	 		 	1	Paper birch		 	 
	! 	i	 	ì	Quaking aspen		 	! 
		į	İ	İ	Red maple			
	İ	j	İ	į	Red pine	74	139	İ
					Sugar maple		39	
		ļ			Yellow birch			
Blue Lake	  cliabe	  Unsuited:	  Slight	  Moderate:	American beech	 	 	  Eastern white
Bide Dake	SIIGHC	Slope	SIIGHC	Droughty	Bigtooth aspen		 	pine, red
	 	22020	! 		Eastern hemlock		 	pine.
		į	İ	İ	Eastern white pine			
	ĺ	j	ĺ	İ	Paper birch			İ
					Quaking aspen			
					Red maple			
	l i	l I	 		Red pine		136   38	 
		l I	 		Yellow birch		30 	 
		İ		İ		İ		
Voelker	Slight	Unsuited:	Slight	Moderate:	American beech			Eastern white
		Slope		Droughty	Bigtooth aspen			pine, red
					Eastern hemlock			pine.
	 	i i	 	1	Eastern white pine		 	 
	! 		! 		Quaking aspen		 	! 
		į	İ	i	Red maple			İ
					Red pine		139	
		Į.		[	Sugar maple		39	
					Yellow birch			
77B:	 	I I	 	I I		[ [	 	 
Garlic	  Slight	  Well suited	  Slight	  Moderate:	American beech	 	 	  Eastern white
<del></del>	, <b>j</b>		, <b>3</b>	Droughty	Bigtooth aspen			pine, red
		j	İ	į	Eastern hemlock		i	pine.
		Į			Eastern white pine			
					Paper birch			
	 	ļ	 		Quaking aspen			 
			 	I I	Red maple		   139	 
	 		 		Sugar maple		39	 

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees	:	  Volume  of wood  fiber*	Suggested   trees to   plant
77B:	 		 			 	 	 
Blue Lake	Slight	Well suited	Slight	Moderate:	American beech			!
				Droughty	Bigtooth aspen Eastern hemlock			: -
	l I	l I	l I		Eastern white pine	!	 	pine.
	I I		 		Paper birch			 
	į		 		Quaking aspen			İ
	İ		İ	Red maple	1		Eastern white pine, red pine.  Eastern white pine, red pine.  Eastern white pine, red pine.	
	j	İ	İ	Red pine	73	136	j	
					Sugar maple	60	38	
			 		Yellow birch			 
Voelker S	Slight	  Well suited	  Slight	Moderate:	American beech			  Eastern white
	ļ	ļ		Droughty	Bigtooth aspen			
					Eastern hemlock	:		pine.
					Eastern white pine		 	
	l I	l I	l I		Paper birch Quaking aspen		 	l I
	I I		 		Red maple			 
	i		! 		Red pine		139	i I
	İ	İ		İ	Sugar maple		39	
	İ	İ		į	Yellow birch			İ
7D:	 		 			 	 	 
Garlic	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
				Droughty	Bigtooth aspen			: -
					Eastern hemlock	:		pine.
					Eastern white pine			
	l I	l I	l I		Paper birch Quaking aspen		 	l I
	 		 		Red maple			 
	İ		! 		Red pine		139	 
	İ	i	! 	İ	Sugar maple		39	
	į	İ		į	Yellow birch		i	
Blue Lake	  Slight	  Well suited	  Slight	  Moderate:	American beech		 	  Eastern white
				Droughty	Bigtooth aspen			pine, red
		ļ		ļ	Eastern hemlock			pine.
					Eastern white pine			
					Paper birch		 	
	l I		l I		Quaking aspen Red maple			 
	l I	l I	 	l I	Red pine		136	 
	i		! 		Sugar maple		38	i I
		į			Yellow birch			
Voelker	  Slight	  Well suited	  Slight	  Moderate:	American beech	 	 	  Eastern white
				Droughty	Bigtooth aspen			pine, red
	Į.	[		[	Eastern hemlock			pine.
					Eastern white pine			
					Paper birch			
	I I	 	 	1	Quaking aspen		 	 
	 	1	I 		Red maple		   139	I 
	! 		! 		Sugar maple		39	1 
	İ	i	İ	İ	Yellow birch			İ
	i I		! !	1	1	1	1	i I

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	 
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
77E:							 	
Garlic	Slight	Poorly   suited:	Slight	Moderate: Droughty	American beech Bigtooth aspen		 	Eastern white pine, red
	 	Slope	 	Dioughty	Eastern hemlock			pine, red
	i	520p0	i	i	Eastern white pine	1		
	i	i	İ	i	Paper birch			
	İ	j	j	İ	Quaking aspen	j	i	İ
	İ	ĺ	ĺ	İ	Red maple			ĺ
					Red pine	74	139	
	[			[	Sugar maple		39	
		ļ			Yellow birch			
Blue Lake	  Climbt	  Poorly	  Slight	  Moderate:	American beech		 	  Eastern white
blue Lake	SIIGHC	suited:	Siight	Droughty	Bigtooth aspen		 	pine, red
	İ	Slope	l I	Dioughey	Eastern hemlock		 	pine, red
	i		İ	i	Eastern white pine			
	İ	į	İ	İ	Paper birch			
	İ	j	į	İ	Quaking aspen	j	i	j
					Red maple			
					Red pine		136	
	!	ļ		!	Sugar maple		38	
					Yellow birch			
Voelker	  Slight	Poorly	  Slight	  Moderate:	American beech		 	  Eastern white
		suited:		Droughty	Bigtooth aspen		 	pine, red
	İ	Slope	İ	i	Eastern hemlock	j		pine.
	İ	į	į	İ	Eastern white pine	j	i	į
					Paper birch			
					Quaking aspen			
					Red maple			
					Red pine		139	
			 		Sugar maple   Yellow birch		39 	 
88:	 		 				 	 
Cathro	Slight	Poorly	Severe:	High:	Balsam fir	40	72	i
	!	suited:	Wetness	Wetness	Black spruce		29	
		Wetness			Eastern arborvitae		29 	
	l I	l I	l I		Paper birch		   29	
	 		 		Tamarack		29	 
					White spruce			
Ensley	  Slight	  Well suited	  Severe:	  High:	  Balsam fir	60	   114	 
-	į	İ	Wetness	Wetness	Black ash			İ
			[		Eastern arborvitae			
					Eastern hemlock			
	!	ļ		!	Red maple		43	
				1	White spruce		!	
	[ [	1	 	I I	Yellow birch		 	 
93:			! 				! 	! 
Tawas	Slight	Poorly	Severe:	High:	Balsam fir	40	72	
		suited:	Wetness	Wetness	Black ash		i	
	[	Wetness	[	Į.	Northern white-cedar			
	ļ				Quaking aspen			
	1	1		1	Red maple			
	1	1		1	1			

Table 7.--Forestland Management and Productivity--Continued

	 	[ [	 		Potential prod	uctivi	ty	 
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
93:			<u> </u>				 	
Deford	Slight	Well suited	Severe:   Wetness	High:   Wetness	Balsam fir		 	Tamarack.
	}		wethess	wethess	Eastern hemlock	1		 
			l I		Northern white-cedar	1	1	 
	İ		 		Paper birch			 
	i	i	İ	i	Quaking aspen		57	
	į		į	į	Red maple	ļ	i	İ
95B:	 		 			 	 	 
Liminga	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
	1			Droughty	Eastern hemlock			pine, red
					Eastern white pine			pine.
					Paper birch			
	ļ				Quaking aspen			
					Red maple			
	l I		 		Sugar maple	60	38	 
104C:								 
Fence	Slight	Well suited	Moderate:	Low	Balsam fir			Eastern white
	1		Wetness		Bigtooth aspen			pine, red
					Eastern hemlock			pine,
	ļ				Eastern white pine			tamarack,
	!		!		Paper birch			white spruce.
					Quaking aspen			
					Red maple			
					Sugar maple			
	 				White spruce Yellow birch		 	 
	į	į				į	į	į
109D: Rousseau	  Slight	  Well suited	  Slight	  Moderate:	  Balsam fir		 	  Jack pine, red
	i	i	İ	Droughty	Bigtooth aspen	53	49	pine.
	İ	j	İ	i	Eastern white pine		i	İ
	ĺ	į	ĺ	İ	Jack pine	47	60	
					Northern red oak			
					Paper birch			
	ļ				Quaking aspen			
					Red maple	1	   73	
	 				Red pine	<b>4</b> 9 	/3 	 
Dawson	Slight	Unsuited:	Severe:	High:	Black spruce	15	22	
		Wetness	Wetness	Wetness	Tamarack			
109F:	 		 			 	 	 
Rousseau	Slight	Unsuited:	Slight	Moderate:	Balsam fir		i	Jack pine, red
	[	Slope		Droughty	Bigtooth aspen	53	49	pine.
	[				Eastern white pine			
	ļ	ļ.	ļ	İ	Jack pine			!
	ļ				Northern red oak	1		
	Į.				Paper birch			
	}				Quaking aspen			
	 		 		Red maple		   73	 
	İ	İ	İ	İ	į	İ	İ	İ
Dawson	Slight	Unsuited:	Severe:	High:	Black spruce		22	
	!	Wetness	Wetness	Wetness	Tamarack			!

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential productivity			pine, red pine, tamarack, white spruce.  Eastern white pine, red pine.  Eastern white pine, red pine, tamarack,
Map symbol and soil name	Erosion hazard	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	trees to
125B:	 		 			 	 	 
Stutts	Slight	Well suited	Slight	Low	American beech			Eastern white
					Bigtooth aspen			· -
					Eastern hemlock		 	_
	 	l I	 	I I	Eastern white pine  Paper birch		 	'
	 		 	i i	Quaking aspen			white spidee.
		i	! 	i	Red maple			! 
		i		i	Red pine		139	
	İ	i	İ	İ	Sugar maple		39	
	į	į		į	Yellow birch			  -
Kalkaska	  Slight	  Well suited	  Slight	  Moderate:	American beech	 	 	  Eastern white
				Droughty	Eastern white pine			pine, red
				!	Quaking aspen			pine.
					Red maple			
	l I		 	1	Red pine		123   39	 
			 		Sugar maple	62 	39	 
125D: Stutts	  Slight	  Well suited	  Slight	Low	American beech	 	 	  Eastern white
beaceb					Bigtooth aspen		 	!
		i		i	Eastern hemlock			
	İ	i	İ	İ	Eastern white pine			tamarack,
	İ	j	İ	İ	Paper birch			white spruce.
					Quaking aspen			
					Red maple			
					Red pine		139	
					Sugar maple		39 	
			 		Yellow birch		 	 
Kalkaska	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
				Droughty	Eastern white pine			pine, red
					Quaking aspen			pine.
					Red maple			
			 		Red pine   Sugar maple		123   39	 
125E:	 		 			 	 	 
Stutts	Slight	Poorly	  Slight	Low	American beech			Eastern white
	ĺ	suited:		į	Bigtooth aspen		i	pine, red
		Slope			Eastern hemlock			pine,
					Eastern white pine			tamarack,
					Paper birch			white spruce.
					Quaking aspen			 
	 	I I	 	I I	Red maple	   74	   139	] 
	 		 		Sugar maple	62	139	 
					Yellow birch			
Kalkaska	  Slight	Poorly	  Slight	  Moderate:	American beech	 	 	  Eastern white
		suited:	_	Droughty	Eastern white pine		i	pine, red
		Slope			Quaking aspen			pine.
		Į.			Red maple			
	ļ	ļ		!	Red pine	68	123	
	1	1	I .	1	Sugar maple	62	39	I .

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation	Windthrow   hazard 	Seedling   mortality 	Common trees	!	  Volume  of wood  fiber*	Suggested trees to plant
135B:			 					
Munising	Slight	Poorly	Moderate:	High:	Balsam fir			
	l I	suited:   Wetness	Wetness	Wetness	Bigtooth aspen	1	 	
	l	wechess	 		Eastern hemlock			
	i		<u> </u>	i	Eastern hophornbeam			'
	Ì	j	İ	İ	Eastern white pine	i	i	
	ĺ	į	ĺ	İ	Quaking aspen	78	91	
	[				Red maple			
	ļ				Sugar maple		41	
	 		 		Yellow birch		 	 
Ensley	Slight	  Well suited	Severe:	High:	Balsam fir	60	114	
	ļ		Wetness	Wetness	Black ash	1		
					Eastern arborvitae	1		
					Eastern hemlock		   43	 
			l I		White spruce	1	43 	 
					Yellow birch		i	
145C:	 		 			 	 	 
Munising	Slight	Poorly	Severe:	  High:	American beech			Eastern white
	Ì	suited:	Rooting	Wetness	Balsam fir		j	Eastern white pine, red pine, tamarack, white spruce.  Eastern white pine, red pine, tamarack, white spruce.  Eastern white pine, red pine, tamarack, white spruce.
	[	Wetness	depth		Bigtooth aspen			pine,
	ļ		Wetness	-	Eastern hemlock			
					Eastern white pine			white spruce.
	l I		l I		Paper birch Quaking aspen		 	 
	İ		 		Red maple			 
	i		<u> </u>	i	Sugar maple		38	
	Ì	j	İ	İ	White spruce	i	j	İ
			 		Yellow birch			 
Yalmer	Slight	Poorly	Severe:	High:	American beech			1
		suited:	Rooting	Wetness	Balsam fir	!		-
	l I	Wetness	depth Wetness	Droughty	Bigtooth aspen Eastern hemlock		 	
	}		wethess		Eastern white pine	1		'
	ì		l I		Paper birch		 	#MICC BPIGCO.
	İ	j	İ	i	Quaking aspen			
	ĺ	į	ĺ	İ	Red maple			
	[				Sugar maple		38	
					White spruce			
	 		 		Yellow birch		 	 
146B:	į	į	į	į	į	į	į	
Munising	Slight	Poorly	Severe:	High:	American beech			
	 	suited:   Wetness	Wetness	Wetness	Balsam fir	:		pine, red
	[ [	wethess	Rooting depth	1	Bigtooth aspen   Eastern hemlock		 	pine, tamarack,
			402011		Eastern white pine			white spruce.
	İ	į	İ	i	Paper birch	1	i	
					Quaking aspen		j	
			[		Red maple			
		ļ			Sugar maple		38	
					White spruce			  -
i	1				Yellow birch			l

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
146B:	 					 		
Skanee	Slight	  Well suited	Severe:	High:	Balsam fir	i		Eastern white
			Rooting	Wetness	Eastern hemlock			pine,
		i	depth		Eastern white pine	!	99	tamarack,
		i	Wetness	i	Paper birch		!	white spruce
		i		i	Quaking aspen	1	64	
		i	i	i	Red maple			İ
			I		White spruce			l I
		i	i		Yellow birch			
	İ	į	İ	i		İ	İ	İ
147A:								
Skanee	Slight	Well suited	1	High:	Balsam fir			Eastern white
			Wetness	Wetness	Eastern hemlock			pine,
			Rooting		Eastern white pine		99	tamarack,
			depth		Paper birch		55	white spruce.
					Quaking aspen		64	
					Red maple		36	
					White spruce			
	l I	l I	 		Yellow birch			
Gay	Slight	  Well suited	  Severe:	  High:	Arborvitae			
		İ	Wetness	Wetness	Balsam fir	53	102	ĺ
		İ	ĺ	İ	Black ash			ĺ
		j	ĺ	İ	Eastern hemlock			ĺ
					Paper birch			
					Quaking aspen			
					Red maple	62	39	
					White spruce			
		ļ		ļ	Yellow birch			
148B:		l I	 			 		 
Shoepac	Slight	Poorly	Moderate:	Moderate:	Balsam fir			Eastern white
		suited:	Wetness	Wetness	Basswood			pine, red
		Wetness			Bigtooth aspen			pine,
					Eastern hemlock			tamarack,
					Eastern hophornbeam			white spruce.
					Eastern white pine			
					Quaking aspen	78	91	
					Red maple			
					Sugar maple		41	
					Yellow birch			
Ensley	  Slight	  Well suited	  Severe:	  High:	  Balsam fir	   60	   114	 
<b>-</b>			Wetness	Wetness	Black ash			İ
	İ	i			Eastern arborvitae			İ
	İ	i	į	i	Eastern hemlock			İ
	İ	i	į	i	Red maple		43	İ
	İ	į	İ	i	White spruce			İ
	İ	į	İ	İ	Yellow birch	i		İ
	 	j I	 		-	:	 	 

Table 7.--Forestland Management and Productivity--Continued

	   		 		Potential produ	ıctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested   trees to   plant
155A:			 					
Zeba	Slight	Well suited		High:	Balsam fir			Eastern white
			Wetness	Wetness	Eastern hemlock			pine,
	l I				Eastern white pine		!	tamarack,
	l I	l I	l I	I	Quaking aspen			white spruce
			 		Red maple		!	 
	İ		! 		White spruce			 
					Yellow birch			
Jacobsville	  Slight	  Well suited		  High:	Arborvitae			
	ļ		Wetness	Wetness	Balsam fir			
	ļ				Black ash			
					Eastern hemlock			
	l I				Paper birch		 	 
	l I	l I	l I	I	Quaking aspen   Red maple		 	l I
	}		l I		White spruce			 
	ļ				Yellow birch			
L57B:	 		 			 	 	 
Reade	Slight	Poorly	Moderate:	High:	American beech			Eastern white
	!	suited:	Wetness	Wetness	Balsam fir			pine,
		Wetness	Rooting		Basswood			tamarack,
			depth		Bigtooth aspen			white spruce
	}				Eastern hemlock			
	I I	ļ	l I		Eastern hophornbeam Eastern white pine		 	 
	I I	l I	l I		Quaking aspen		1	l I
			l I		Red maple			 
	İ		 		Sugar maple			 
	į				Yellow birch			
Nahma	  Slight	  Well suited		  High:	Balsam fir			
	}		Wetness	Wetness	Balsam poplar		 	
	I I	ļ	l I		Black ash Eastern hemlock		 	 
	}		l I		Northern white-cedar			 
	i		l I		Paper birch			 
	ì		i I	i	Quaking aspen			! 
	i	i	İ	i	Red maple			
	i I	İ	  -	İ	Yellow birch		i	  -
158C:		 						 
Munising	siignt	Poorly   suited:	Severe:	High: Wetness	American beech Balsam fir		 	Eastern white
	I I	suited:   Wetness	Rooting depth	wethess	Balsam fir Bigtooth aspen		1	pine, red
	1	Hechess	Wetness		Eastern hemlock			tamarack,
	i				Eastern white pine		1	white spruce
	i	i	İ	i	Paper birch			 
	i	i	İ	i	Quaking aspen		1	İ
	İ	ĺ	İ	İ	Red maple			İ
	I				Sugar maple	61	38	
	[				White spruce		j	
					Yellow birch			

Table 7.--Forestland Management and Productivity--Continued

		į	 	İ	Potential prod	uctivi	ty	pine, tamarack, white spruce.
Map symbol and   soil name	Erosion hazard	Site  preparation 	Windthrow n  hazard 	Seedling   mortality 			  Volume  of wood  fiber*	trees to
158C:			 			 		 
Abbaye	Slight	Poorly	Moderate:	High:	American beech	i		Eastern white
i	_	suited:	Wetness	Wetness	Balsam fir			pine,
İ		Wetness	İ	i	Bigtooth aspen			tamarack,
i		İ	İ	İ	Eastern hemlock	i		white spruce.
i		İ	İ	İ	Eastern white pine	i		Ī
İ		į	İ	i	Paper birch			İ
İ		į	İ	i	Quaking aspen			İ
İ		i	İ	i	Red maple			<u>.</u> 
İ		i	İ	i	Sugar maple		39	<u>.</u> 
İ		į	İ	i	White spruce			İ
İ		i	İ	i	Yellow birch	i		İ
İ		i	İ	i	İ	i		<u>.</u> 
160B:		į	İ	i	İ	İ		
Paquin	Slight	Well suited	Moderate:	Moderate:	American beech			Eastern white
i	_	į	Wetness	Droughty	Black cherry			pine, red
İ		į	İ	i	Eastern hemlock			_
İ		i	İ	i	Eastern white pine	i		_
İ		į	İ	i	Quaking aspen			İ
İ		į	İ	i	Red maple	64	40	
İ		i	İ	i	Red pine		120	<u>.</u> 
İ		i	İ	i	Sugar maple		37	<u>.</u> 
į		į	į	į	Yellow birch			
  Finch	Slight	  Poorly	  Moderate:	  High:	  Eastern white pine	   53	   100	  Eastern white
İ	_	suited:	Wetness	Wetness	Jack pine		72	pine, red
i		Restrictive	İ	İ	Paper birch	54	55	pine,
İ		layer	ĺ	İ	Quaking aspen	56	57	tamarack,
					Red maple	56	36	white spruce.
					Red pine	56	88	
161B:			 			 	 	 
Yellowdog	Slight	Poorly	Slight	Moderate:	American beech	:		Eastern white
		suited:	!	Droughty	Bigtooth aspen	:		pine,
		Rock			Eastern hemlock			tamarack,
		fragments			Eastern white pine			white spruce.
					Paper birch			
					Quaking aspen			
					Red maple			
					Sugar maple		38	
					Yellow birch			 
Buckroe	Slight	  Well suited	  Severe:	  Moderate:	American beech	 	 	  Eastern white
j			Rooting	Droughty	Bigtooth aspen			pine,
j			depth		Eastern hemlock			tamarack,
j					Eastern white pine			white spruce.
j					Paper birch			
j					Quaking aspen			
1					Red maple			
		1						
		j	j	İ	Sugar maple   Yellow birch		38	

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential produ	uctivi	ty	 
Map symbol and soil name	Erosion hazard	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
165B:	 		 			 	 	 
Chocolay	Slight	Poorly	Moderate:	High:	American beech			Eastern white
		suited:	Wetness	Droughty	Balsam fir			pine,
		Wetness	Rooting	Wetness	Bigtooth aspen			tamarack,
	 	Rock	depth		Eastern hemlock   Eastern white pine		 	white spruce.
	 	fragments	l I		Paper birch			 
	 		 		Quaking aspen			 
	! 		i I		Red maple		1	 
			İ		Sugar maple			
	İ	İ	İ	İ	White spruce			
		į	İ	į	Yellow birch			 
Waiska	  Slight	Poorly	  Slight	  Moderate:	American beech	 	 	  American
		suited:		Droughty	Balsam fir			basswood,
		Rock			Eastern hemlock			balsam fir,
		fragments			Paper birch			eastern
			!	!	Quaking aspen		1	hemlock,
					Red maple			paper birch,
					Sugar maple		!	quaking
			   		Yellow birch	   	   	aspen, sugar maple, yellow birch.
166:	 		 			 	 	 
Skandia	Slight	Poorly	Severe:	High:	Arborvitae			
		suited:	Wetness	Wetness	Balsam fir			
		Wetness	Rooting		Black spruce			
			depth		Eastern hemlock			
					Eastern white pine		 	 
	l I	l	l I		Red maple		 	 
					White spruce			 
167:			 		 	 	 	 
Skandia	Slight	Poorly	Severe:	High:	Arborvitae			
		suited:	Wetness	Wetness	Balsam fir	i	j	İ
		Wetness	Rooting		Black spruce			
			depth		Eastern hemlock			
			!	!	Eastern white pine			
					Red maple			
	 		 		Tamarack   White spruce		 	 
		į			İ	İ	į	
Jacobsville	Slight	Well suited		High:	Arborvitae			
	 		Wetness	Wetness	Balsam fir   Black ash		   35	 
	 		I I	 	Eastern hemlock			 
	1 		! 		Paper birch			1 
	İ		İ		Quaking aspen			 
			I .	1	1 - 1 - 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	1	1	1
					Red maple			
	 		 		Red maple   White spruce		 	 

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	   
Map symbol and soil name	   Erosion   hazard 	Site  preparation 	   Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
170B:	 		 			 	 	 
Chocolay	Slight	Poorly	Moderate:	High:	American beech			Eastern white
		suited:	Wetness	Wetness	Balsam fir			pine,
	İ	Wetness	Rooting	Droughty	Bigtooth aspen	1		tamarack,
	İ	Rock	depth		Eastern hemlock			white spruce.
	İ	fragments	-	i	Eastern white pine			
	İ		i	i	Paper birch	1		
	İ	İ	i	i	Quaking aspen	:		
	İ	İ	i	i	Red maple			
	İ	i	i	i	Sugar maple		38	
	İ	į	İ	i	White spruce			
	į		į	į	Yellow birch		ļ	İ
171B:								
Paavola	Slight	Poorly	Moderate:	High:	Balsam fir			Eastern white
		suited:	Wetness	Wetness	Bigtooth aspen			pine, red
		Wetness	ļ	Droughty	Eastern hemlock			pine,
		Rock	ļ	!	Eastern white pine			tamarack,
		fragments	ļ	!	Paper birch			white spruce.
			!	!	Quaking aspen			
			!	!	Red maple			
					Sugar maple		38	
					White spruce			
	 				Yellow birch		 	 
172D: Buckroe	  Slight	Poorly	  Severe:	  Moderate:	  American beech		 	Eastern white
Duchicc		suited:	Rooting	Droughty	Bigtooth aspen			pine,
	l I	Rock	depth	Dioughey	Eastern hemlock			tamarack,
	 	fragments	-		Eastern white pine			white spruce.
		Slope	ì	İ	Paper birch	:		
	İ		i	i	Quaking aspen	:		
	İ	i	i	i	Red maple			
	İ	į	İ	i	Sugar maple		38	
	į		į	į	Yellow birch		i	
Rock outcrop.								
172F:	 	I I	I I	I		I	 	 
Buckroe	  Slight	  Unsuited:	  Severe:	  Moderate:	American beech		 	  Eastern white
		Slope	Rooting	Droughty	Bigtooth aspen			pine,
	İ	Rock	depth		Eastern hemlock	:		tamarack,
	İ	fragments		i	Eastern white pine			white spruce.
	İ		i	i	Paper birch			
	į	į	i	i	Quaking aspen			İ
	İ	i	i	i	Red maple			İ
	İ	į	i	i	Sugar maple	1	38	İ
	į	į	į	į	Yellow birch			į
Rock outcrop.	 		 				 	 
одоодор.		İ						

Table 7.--Forestland Management and Productivity--Continued

	i I	į	   		Potential prod	ıctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
176B:			 			 	 	 
Croswell	Slight	Well suited	Moderate:	Low	Bigtooth aspen Eastern white pine		86 	Eastern white pine, red
			Wechess		Jack pine		72	pine, red
			 		Northern red oak		1	spruce.
	i		İ	i	Paper birch			
	İ	i	İ	i	Quaking aspen		72	
	İ	j	j	İ	Red maple	i	j	İ
	İ		 		Red pine	55	86	 
Kinross	Slight	Well suited		High:	Balsam fir			
			Wetness	Wetness	Black spruce			
					Eastern white pine			
	I I	l I	 	I	Jack pine  Northern white-cedar		 	 
			l I		Paper birch			 
			l I		Quaking aspen		1	 
	i		İ		Red maple			! 
					Tamarack			
181E:			 			 		 
Frohling	Slight	Poorly	Slight	Low	American beech			Eastern white
		suited:	!		Balsam fir			pine, red
		Slope			Bigtooth aspen			pine,
					Eastern hemlock		 	tamarack,
			l I		Eastern white pine		 	white spruce
			l I		Quaking aspen			 
			 		Red maple		1	 
	i		İ	i	Sugar maple			 
	İ	i	İ	i	White spruce		i	
	į		  -	į	Yellow birch			 
Tokiahok	Slight	Poorly	  Severe:	Moderate:	American beech			  Eastern white
		suited:	Rooting	Droughty	Balsam fir			pine, red
		Slope	depth		Bigtooth aspen			pine,
					Eastern hemlock			tamarack,
	1		l I		Eastern white pine		 	white spruce
			l I		Quaking aspen			 
			 		Red maple			 
			<u> </u>	i	Sugar maple	61	38	
	İ	i	İ	i	White spruce		i	
	į		  -	į	Yellow birch			 
185B:			<u> </u>				<u> </u>	 
McMaster	Slight	Well suited		Low	Balsam fir			Eastern white
			Wetness		Basswood			pine, red
			 		Bigtooth aspen		 	pine,
	I	l I	I I	I	Eastern hemlock			tamarack,   white spruce
			! 		Eastern white pine	:		whice abince
	i		İ		Quaking aspen		!	 
	i	į	İ	i	Red maple			ĺ
	i	į	İ	i	Sugar maple		41	İ

Table 7.--Forestland Management and Productivity--Continued

	   				Potential productivity			   
Map symbol and soil name	   Erosion   hazard 	Site  preparation 	Windthrow   hazard	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
186B:	 		 		 	 	 	 
Chatham	Slight	Well suited	Slight	Low	American beech	i		Eastern white
	İ	į		İ	Balsam fir	i		pine, red
	İ	į		İ	Basswood	i		pine,
	İ	j	ĺ	İ	Bigtooth aspen	i		tamarack,
	İ	j	ĺ	İ	Eastern hemlock	i		white spruce.
	ĺ	ĺ		İ	Eastern hophornbeam			
	ĺ	ĺ			Eastern white pine			
					Quaking aspen	78	91	
					Red maple			
					Sugar maple		42	
	 		 		Yellow birch	 		 
186D:								
Chatham	Slight	Well suited	Slight	Low	American beech			Eastern white
		!			Balsam fir			pine, red
					Basswood	!		pine,
					Bigtooth aspen			tamarack,
					Eastern hemlock	!		white spruce.
					Eastern hophornbeam			
					Eastern white pine	:		
					Quaking aspen		91	
					Red maple			
	 		 		Sugar maple   Yellow birch		42	 
		į			į	į	į	
187B:				   TT 2 1-				 
Reade	Slight	Poorly	Moderate:	High:	American beech			Eastern white
	 	suited:   Wetness	Wetness	Wetness	Balsam fir   Basswood		 	pine,
	l I	wetness	Rooting	l I	Bigtooth aspen	!	 	tamarack,
	 		depth		Eastern hemlock			white spruce.
	 		 	1	Eastern hophornbeam	!		 
	 	l I	 		Eastern white pine	:		 
	! 	i	 	i	Quaking aspen	:	91	! 
	İ	i		İ	Red maple			 
	İ	i		İ	Sugar maple		41	
		į			Yellow birch			
188B:	 		 		 	 	 	 
Eben	Slight	Poorly	Slight	Moderate:	Balsam fir			Eastern white
	ĺ	suited:		Droughty	Basswood			pine, red
		Rock			Bigtooth aspen		i	pine,
		fragments			Eastern hemlock			tamarack,
					Eastern hophornbeam			white spruce.
					Eastern white pine			
					Quaking aspen		91	
		ļ		!	Red maple			
				!	Sugar maple   Yellow birch		42	

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential produ	ıctivi	ty	   
Map symbol and soil name	Erosion hazard	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
188D:	 		 			 	 	 
Eben	Slight 	Poorly   suited:	Slight 	Moderate: Droughty	Balsam fir   Basswood			Eastern white   pine, red
	ļ	Rock			Bigtooth aspen		:	pine,
		fragments			Eastern hemlock			tamarack,
					Eastern hophornbeam			white spruce
	l I		l I	1	Eastern white pine Quaking aspen		1	 
	l I	l I	l I		Red maple			 
	I I	l I	l I	l I	Sugar maple			 
					Yellow birch			   
188E:			 					
Eben	Slight	Poorly	Slight	Moderate:	American beech			Eastern white
		suited:		Droughty	Balsam fir			pine, red
	l I	Slope   Rock	l I	1	Bigtooth aspen	!	 	pine, tamarack,
	I I	fragments	 		Eastern hemlock			white spruce
	i	=====================================	i I		Eastern hophornbeam			
	İ	i	İ	İ	Eastern white pine	i		
	j	j	İ	İ	Quaking aspen	78	91	İ
	[				Red maple			
					Sugar maple	68	42	
	1				Yellow birch			 
191B:	 		 			 	 	 
Ruse	Slight	Poorly	Severe:	High:	Balsam fir	40	71	
		suited:	Wetness	Wetness	Balsam poplar		:	
		Wetness	Rooting		Black ash			
			depth		Eastern hemlock			
	l I	l I	l I		Northern white-cedar  Paper birch		 	l I
	 		l I		Quaking aspen		 	 
	! [	İ	 	i i	Red maple			 
					Yellow birch			
Ensign	  Slight	  Well suited	  Severe:	  High:	  American basswood	   65	   57	  Eastern white
	[		Rooting	Wetness	American beech			pine,
			depth		Balsam fir		:	tamarack,
			Wetness		Bigtooth aspen			white spruce.
					Northern white-cedar  Paper birch		57 57	 
	l I	l I	l I		Quaking aspen			 
			! 		Red pine			 
		İ			Sugar maple	53	29	
197B:	 		 			 	 	 
Shoepac	Slight	Poorly	Moderate:	Moderate:	American beech		i	Eastern white
	ļ	suited:	Wetness	Wetness	Balsam fir			pine, red
		Wetness			Basswood			pine,
	 				Bigtooth aspen			tamarack,
	 	l I	l I	 	Eastern hemlock   Eastern hophornbeam	 	 	white spruce.
	I I		I 		Eastern white pine	1	 	 
	! 		! 		Quaking aspen		   91	! 
		į	İ	İ	Red maple			
		į	İ	į	Sugar maple		:	
							i	

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential produ	uctivi	Э	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		Volume  of wood  fiber*	Suggested trees to plant
197B:			 			[		 
Trenary	Slight	Well suited	Slight	Low	American beech			Eastern white
					Balsam fir		 	pine, red
	 		 		Bigtooth aspen		 	pine,   tamarack,
	 		 		Eastern hemlock			white spruce.
	İ	i		İ	Eastern hophornbeam			
	j	j	İ	į	Eastern white pine	j		j
					Quaking aspen	78	91	
					Red maple			
					Sugar maple		41	
	 		 		Yellow birch	 		 
198B:	<u> </u>	į.			į.	į		<u> </u>
Shoepac	Slight	Poorly   suited:	Moderate:	Moderate:	American beech Balsam fir		 	Eastern white
	 	Suited:	wetness	Wetness	Basswood		 	pine, red pine,
	 	Wechess	 	i i	Bigtooth aspen			tamarack,
	İ	i		İ	Eastern hemlock			white spruce.
	į į	j	İ	į	Eastern hophornbeam	j		į
				Eastern white pine				
				Quaking aspen		91		
	ļ				Red maple			
		 		Sugar maple   Yellow birch		41	 	
		<u> </u>			į.	į		<u> </u>
Reade	Slight	Poorly   suited:	Moderate:	High:   Wetness	American beech Balsam fir		 	Eastern white
	 	Wetness	Rooting	wethess	Basswood		 	pine,   tamarack,
	 	Weeness	depth	ì	Bigtooth aspen			white spruce.
	İ	i		İ	Eastern hemlock			
	j	j	İ	į	Eastern hophornbeam	j		j
					Eastern white pine			
					Quaking aspen		91	
					Red maple			
			 		Sugar maple   Yellow birch		41 	 
	į	į		į		į		
200A: Charlevoix	  Slight	  Well suited	  Moderate:	  High:	  Balsam fir	 	 	Norway spruce,
01142 20 10 211			Wetness	Wetness	Eastern hemlock			eastern white
	İ	j	İ	İ	Eastern hophornbeam	j		pine,
					Paper birch			tamarack,
					Quaking aspen			white spruce.
					Red maple		43	
					Sugar maple   White spruce		39 	
			 		Yellow birch			 
Re al es	014-25	 		   TT h -	  Palmam file:			
Ensley	siignt 	Well suited	Severe:   Wetness	High: Wetness	Balsam fir   Black ash		114	 
		į	İ	İ	Eastern arborvitae			į
					Eastern hemlock	i		
		ļ	!	!	Red maple		43	!
					White spruce   Yellow birch			
	1	1						

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	ıctivi	ŧу	
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
202B:	 		 			 		 
Sauxhead	Slight	Poorly	Severe:	High:	American beech			Eastern white
		suited:	Wetness	Droughty	Bigtooth aspen			pine,
	l I	Rock fragments	Rooting depth	Wetness	Eastern hemlock		 	tamarack,   white spruce
	 	ITagments	depth	1	Paper birch		 	white spide
	İ		 		Quaking aspen			
	j	j	İ	İ	Red maple	i		į
	 		 		Sugar maple		38	 
206B:	  -		 			j I		  -
Traunik	Slight	Poorly	  Slight	Low	Balsam fir		 	  Eastern white
		suited:	l		Basswood			pine, red
		Rock			Bigtooth aspen			pine,
	!	fragments		!	Eastern hemlock			tamarack,
					Eastern hophornbeam			white spruce
	l I	l	l I	 	Eastern white pine		   91	 
	! [	İ	 		Red maple			 
	   		   		Sugar maple   Yellow birch	66		   
00CD :								
206D: Traunik	  Slight	  Poorly	  Slight	Low	  Balsam fir	 	 	  Eastern white
		suited:			Basswood			pine, red
	į	Rock	İ	j	Bigtooth aspen	j		pine,
		fragments			Eastern hemlock			tamarack,
	!				Eastern hophornbeam			white spruce
					Eastern white pine			
	l I	l	l I	 	Quaking aspen Red maple			 
	 		 		Sugar maple			
	   		   		Yellow birch			   
211B:	 	     December		TT i mb	 	   	   	 
Munising	Siight	Poorly   suited:	Severe:   Wetness	High:   Wetness	American beech Balsam fir		 	Eastern white   pine, red
	İ	Wetness	Rooting	Weenebb	Bigtooth aspen			pine,
	İ		depth		Eastern hemlock			tamarack,
	j	j	_ 	İ	Eastern white pine	i		white spruce
					Paper birch			
		ļ			Quaking aspen			
					Red maple			
	l I		l I	l I	Sugar maple			l I
			   		Yellow birch			    -
Abbaye	  Slight	Poorly	  Moderate:	  High:	American beech	 		  Eastern white
		suited:	Wetness	Wetness	Balsam fir			pine,
		Wetness			Bigtooth aspen			tamarack,
					Eastern hemlock			white spruce.
	 	l I	 	1	Eastern white pine		 	 
	 		I 		Quaking aspen			I 
			İ		Red maple			
	İ	į	İ	İ	Sugar maple			İ
					White spruce			

Table 7.--Forestland Management and Productivity--Continued

	   		   	 	Potential produ	uctivit	-y	pine, red pine.
Map symbol and soil name	Erosion   hazard 	Site  preparation	Windthrow   hazard		Common trees		Volume of wood fiber*	trees to
214B: Kalkaska	    Slight	    Well suited	    Slight	    Moderate:	    American beech	   	   	    Eastern white
	!			Droughty	Bigtooth aspen			· -
					Eastern white pine			pine.
					Paper birch			 
	l I		 	I I	Quaking aspen		 	 
	 		 		Red pine		136	 
					Sugar maple		38	   
Blue Lake	Slight	  Well suited	Slight	Moderate:	American beech			Eastern white
				Droughty	Bigtooth aspen			_
					Eastern hemlock			pine.
	l I		 		Eastern white pine  Paper birch			 
	 		 	1	Quaking aspen		 	 
	 		 	1	Red maple			 
			! 	i	Red pine		136	 
	İ	i	İ	İ	Sugar maple		38	
	  -	į	  -	İ	Yellow birch			 
214D:								
Kalkaska	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
	l I		 	Droughty	Bigtooth aspen		 	pine, red
	 		 		Eastern white pine  Paper birch			pine.
	 		 	 	Quaking aspen			 
		i	! 	i	Red maple			! 
				İ	Red pine		136	
	į	į			Sugar maple		38	
Blue Lake	Slight	  Well suited	Slight	Moderate:	American beech			Eastern white
				Droughty	Bigtooth aspen			pine, red
					Eastern hemlock		 	pine.
	 		 	1	Eastern white pine  Paper birch		 	 
	 		 	1	Quaking aspen			 
			! 	i	Red maple			 
	İ	i	İ	İ	Red pine		136	
	İ	İ	İ	İ	Sugar maple	60	38	İ
	 		 		Yellow birch		 	 
214E:	    Cliabt	    Poor1	     Cliabt	Moderate	American beech	   		 
Kalkaska	  errdur	Poorly   suited:	Slight	Moderate: Droughty	Bigtooth aspen			Eastern white pine, red
	İ	Slope	! 	Dioagney	Eastern white pine			pine, red
	į		İ	İ	Paper birch			
	į	į	į	İ	Quaking aspen			
					Red maple			
	 	I	 	I I	Red pine   Sugar maple	73 60	136   38	] I

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential produ	uctivi	ty	   
Map symbol and soil name	Erosion hazard	Site  preparation 	Windthrow hazard	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
214E:	 		 			 	 	
Blue Lake	Slight	Poorly	Slight	Moderate:	American beech			Eastern white
	ĺ	suited:		Droughty	Bigtooth aspen			pine, red
	İ	Slope	İ	İ	Eastern hemlock		i	pine.
	ĺ			İ	Eastern white pine			
	ĺ	j		İ	Paper birch			
	ĺ			İ	Quaking aspen			
	ĺ			İ	Red maple			
	ĺ			İ	Red pine	73	136	
	ĺ			İ	Sugar maple	60	38	
	İ	İ	 	į	Yellow birch			  -
221B:	 		 				 	 
Jeske	Slight	Well suited		High:	Balsam fir			Eastern white
			Rooting	Wetness	Eastern hemlock	!		pine,
			depth		Eastern white pine		!	tamarack,
			Wetness		Paper birch			white spruce
					Quaking aspen		1	
					Red maple			
					White spruce			
	 		 		Yellow birch	 	 	 
Au Train	Slight	Well suited		High:	American beech			Eastern white
			Rooting	Wetness	Bigtooth aspen			pine,
			depth	Droughty	Eastern hemlock			tamarack,
			Wetness		Eastern white pine			white spruce
					Paper birch			
					Quaking aspen			
					Red maple	62	39	
					Sugar maple		40	
	 		 		Yellow birch	 		 
Gongeau	Slight	Poorly	Severe:	High:	Balsam fir	!		
		suited:	Wetness	Wetness	Eastern hemlock			
		Wetness	Rooting		Eastern white pine		!	
			depth		Paper birch			
					Quaking aspen		1	
					Red maple			
	 		 		White spruce  Yellow birch		 	 
2250.			 					 
225B: Cusino	  Gliab+	  Well anital	  Slight	  Moderate:	American booch	   66	   41	  Eastern white
C481110	  briding	Well suited	DIIGHT		American beech		41	
	I.	I I	I I	Droughty	Bigtooth aspen   Eastern hemlock			pine, red
	I I	I I	 	 				brue.
	I.	I I	I I	I I	Eastern white pine   Paper birch			 
	I.	I I	I I	I I	Quaking aspen			 
	I I	I I	I I	 	Red maple		34	 
	I I	I I	l I	1				 
	I I	I I	l I	1	Red pine			 
	I I		  -	1	Sugar maple		39	 
	I	1	I	1	Yellow birch			I

Table 7.--Forestland Management and Productivity--Continued

	   		 		Potential prod	uctivi	ty	Suggested trees to plant  Eastern white pine, red pine.  Eastern white pine, red pine.
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	trees to
225D:	 				 			 
Cusino	Slight	Well suited	Slight	Moderate:	American beech		41	
		ļ		Droughty	Bigtooth aspen			
	l I	ļ	l I	1	Eastern hemlock   Eastern white pine		 	pine.
	 			1	Paper birch		 	 
	I I	İ	i I	1	Quaking aspen			 
	l I	İ	İ		Red maple		34	 
	i	i	i		Red pine			i i
	İ	i	i	İ	Sugar maple		39	
	j I	į	i I		Yellow birch			  -
226B: Kalkaska	    cliabe	    Well suited	Clicht	  Moderate:	American beech	   	   	 
Raikaska	Siight	well suited	SIIGHC	Droughty	Bigtooth aspen		 	
	 		1	Dioughty	Eastern white pine			
	l I	İ	İ		Paper birch		 	
	İ	i	i		Quaking aspen			İ
	İ	i	İ	İ	Red maple			
	İ	j	Ì	İ	Red pine	73	136	İ
	 	İ	 		Sugar maple	60	38	 
Cusino	Slight	Well suited	Slight	Moderate:	American beech	:	41	Eastern white
		ļ	l I	Droughty	Bigtooth aspen		 	pine, red
	l I	l I	l I	1	Eastern hemlock   Eastern white pine	:	 	pine.
	 			1	Paper birch		 	 
	l I	İ	İ		Quaking aspen		 	 
	İ	i	i		Red maple		34	İ
	İ	i	i	İ	Red pine			
	İ	į	Ì	İ	Sugar maple	59	39	İ
	i I	į	  -	İ	Yellow birch			  -
226D:	 	    Well suited	    Cliabe	  Moderate:	American beech	   	   	    Eastern white
Kalkaska	  briding	werr surred	  -	Droughty	Bigtooth aspen		 	pine, red
	İ		İ	Dioagney	Eastern white pine			pine, red
	İ	i	i		Paper birch			
	İ	į	į	İ	Quaking aspen	i		
	ĺ	j	Ì	İ	Red maple	i		İ
	ĺ	ĺ	ĺ	İ	Red pine	73	136	ĺ
	 		 		Sugar maple	60 	38 	 
Cusino	Slight	Well suited	Slight	Moderate:	American beech		41 	Eastern white pine, red
	l I	I I	I I	Droughty	Bigtooth aspen  Eastern hemlock		 	pine, red   pine.
	I I		 		Eastern white pine		 	Pine.
	İ		İ		Paper birch			! 
	İ	i	İ	İ	Quaking aspen		 	İ
	į	i	į	İ	Red maple		34	İ
	İ	į	İ	İ	Red pine			İ
					Sugar maple	59	39	
	I.	1	1	1	Yellow birch		i	I .

Table 7.--Forestland Management and Productivity--Continued

	   		 		Potential prod	uctivi	ty	
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
226E: Kalkaska	    Slight 	    Poorly   suited:	    Slight 	    Moderate:   Droughty	    American beech  Bigtooth aspen	1	     	    Eastern white   pine, red
	 	Slope			Eastern white pine   Paper birch   Quaking aspen	 	   	pine.
	   		   		Red maple   Red pine	i	     136	
Cusino	    Slight	    Poorly	    Slight	      Moderate:	Sugar maple     American beech	į	38     41	Eastern white
0452110		suited:   Slope		Droughty	Bigtooth aspen  Eastern hemlock	i i	 	pine, red
	   		   		Eastern white pine   Paper birch   Quaking aspen	i	   	
	 				Red maple   Red pine	53	34	
	   		   	   	Sugar maple   Yellow birch	1	39   	
226F: Kalkaska	  Slight 	  Unsuited:   Slope	  Slight 	  Moderate:   Droughty	  American beech  Bigtooth aspen	!	   	  Eastern white   pine, red
	   		   	   	Eastern white pine  Paper birch	 	   	pine.
	   		   		Quaking aspen  Red maple  Red pine		     136	
					Sugar maple	60	38	
Cusino	Slight   	Unsuited:   Slope 	Slight   	Moderate:   Droughty	American beech  Bigtooth aspen  Eastern hemlock		41   	Eastern white pine, red pine.
	 		   		Eastern white pine		   	
	   		   		Quaking aspen  Red maple  Red pine	53	34 	
	   		   		Sugar maple   Yellow birch	1	39 	
227A: Halfaday	  Slight	  Well suited		Low	American beech	1	 	Eastern white
	   		Wetness   		Bigtooth aspen  Eastern hemlock  Eastern white pine		   	pine, red pine, tamarack,
	 		   		Paper birch  Quaking aspen		 	white spruce.
	   		   		Red maple   Red pine   Sugar maple	73	   136   38	
	 		 		Yellow birch	 	 	

Table 7.--Forestland Management and Productivity--Continued

	j I	İ		İ	Potential prod	uctivi	ty	 
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested   trees to   plant
232B:						 	 	
Shelldrake	Slight	Well suited	Slight	Moderate:	Black cherry   Eastern white pine		 	Eastern white
	 		 	Droughty	Jack pine		   57	pine, jack pine, red
	 		 	i i	Northern red oak			pine, red
		i	! 	i	Paper birch	1		
	İ	i	İ	İ	Quaking aspen	i		İ
		į		İ	Red pine	45	64	İ
233B:			 		İ	 	 	 
Abbaye	Slight	Poorly	Moderate:	  High:	American beech	 		Eastern white
		suited:	Wetness	Wetness	Balsam fir			pine,
		Wetness			Bigtooth aspen			tamarack,
	!	ļ		ļ	Eastern hemlock			white spruce
					Eastern white pine			
					Paper birch			
	 		l I	I I	Quaking aspen   Red maple		 	1
	 		 		Sugar maple		   39	 
	 		 	İ	White spruce			
		j	İ	İ	Yellow birch			İ
Z-h-	01:	  Wall ===================================	Madamaka.	   TT   = 15 .	  Palaam film			Eastern white
Zeba	Slight	Well suited	Moderate:   Wetness	High:   Wetness	Balsam fir   Eastern hemlock		 	pine,
	 		Wechess	Wechess	Eastern white pine		99	tamarack,
	 	i	 	ì	Paper birch		55	white spruce
	İ	i		i	Quaking aspen		64	
	İ	j	İ	į	Red maple	56	36	j
					White spruce			
	 		 		Yellow birch			 
234A:								
Levasseur	Slight	Unsuited:	Severe:	High:	Balsam fir			Eastern white
		Restrictive	Rooting	Wetness	Eastern hemlock			pine,
		layer	depth	!	Eastern white pine		99	tamarack,
		Rock	Wetness		Paper birch		55	white spruce
	 	fragments	l I	I I	Quaking aspen		64 36	1
	 		 		White spruce		30	 
		İ			Yellow birch			
Decemb	01:	  Wall ===================================		   TT   = 15 .	  Palaam film			
Burt	Siignt	Well suited	Wetness	High:   Wetness	Balsam fir   Black spruce		 	Eastern arborvitae,
	 		Rooting	Wechess	Eastern arborvitae			white spruce
		i	depth	i	Eastern hemlock			
	İ	i		İ	Quaking aspen			
	į	į		į	Red maple			į
235B:					l I	 	 	 
Sauxhead	Slight	Poorly	  Severe:	  High:	American beech	 		Eastern white
	į -	suited:	Wetness	Droughty	Bigtooth aspen			pine,
		Rock	Rooting	Wetness	Eastern hemlock	i	i	tamarack,
		fragments	depth		Eastern white pine			white spruce
		ļ		!	Paper birch			
		ļ			Quaking aspen			
		ļ.			Red maple			
	I I	I I	 	I I	Sugar maple   Yellow birch		38 	 
	!	!	!	1	TETTOM DILGU	!	!	!

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
235B:	 		 			 	 	 
Burt	Slight	Well suited		High:	Balsam fir			
			Wetness	Wetness	Black spruce			
	l I		Rooting		Eastern arborvitae		 	
	}		depth		Eastern hemlock Quaking aspen		 	 
	į				Red maple			
236B:	 		 		 	 	 	 
Waiska	Slight	Unsuited:	Slight	Moderate:	American beech	j	i	Eastern white
		Rock		Droughty	Balsam fir			pine, red
	ļ	fragments			Eastern hemlock			pine,
	ļ				Paper birch			tamarack,
					Quaking aspen		82	white spruce
					Red maple			
	 		 		Sugar maple   Yellow birch		38 	
236D:	[ [		 			 	  -	 
Waiska	Slight	Unsuited:	  Slight	Moderate:	American beech			  Eastern white
	[	Rock		Droughty	Balsam fir			pine, red
	ļ	fragments			Eastern hemlock			pine,
	ļ		!	!	Paper birch			tamarack,
					Quaking aspen			white spruce
					Red maple			
			 		Sugar maple   Yellow birch		38 	
237B:	 		 			 	 	 
Chatham	Slight	Well suited	Slight	Low	Balsam fir			Eastern white
	ļ				Basswood			pine, red
					Bigtooth aspen			pine,
	}				Eastern hemlock			tamarack,
	I I	ļ I	l I		Eastern hophornbeam		 	white spruce
	}		l I		Eastern white pine  Quaking aspen		   91	 
	i I	l I	l I	l I	Red maple			I I
	İ		! 		Sugar maple		42	 
					Yellow birch			į
Davies	  Slight	Poorly	  Severe:	  High:	  Balsam fir	   54	 	
	     	suited:   Rock   fragments	Wetness   	Wetness   	Red maple    	55   	   	     
239B:								
Longrie	Slight	Well suited	Slight	Low	American beech			Eastern white
		1			Balsam fir			pine,
	Į.	1	 	1	Basswood			tamarack,
	1	1	I I	 	Bigtooth aspen   Eastern hemlock		 	white spruce
	i		i I		Eastern hophornbeam			İ
	i		İ		Eastern white pine			İ
	i	i	İ	į	Quaking aspen		91	İ
	İ	ĺ	İ	İ	Red maple			İ
					and the second s			t .
					Sugar maple	66	41	1

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential produ	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
239B:	 		 			 	 	 
Shingleton	Slight 	Well suited	Severe: Rooting	Moderate: Droughty	American beech  Balsam fir		 	Eastern white pine,
			depth		Basswood			tamarack,
					Bigtooth aspen			white spruce
					Eastern hemlock	:		
					Eastern hophornbeam			
					Eastern white pine			
	 				Quaking aspen		86	 
	 		 		Red maple			 
	 	l I	 	1	Sugar maple   Yellow birch		39 	 
240F:					<u> </u>			
Trout Bay		Poorly	Severe:	High:	ArborvitaeBalsam fir			
	Slope	suited:	Wetness	Wetness	Balsam fir   Black ash	1	 	 
	 	Wetness   Slope	Rooting depth		Eastern hemlock		 	 
	 	DIOPE	depth		Eastern white pine			 
	 		 	i i	Paper birch			 
	! [		 	İ	Quaking aspen		 	 
	! 	i	! 	i	Red maple		34	! 
		i		i	Sugar maple			
	İ	i	İ	İ	White spruce			<u> </u>
	į	į		į	Yellow birch	i	i	
Gongeau	  Slight	Poorly	  Severe:	  High:	  Arborvitae	 	 	  Balsam fir,
		suited:	Wetness	Wetness	Balsam fir			eastern
	İ	Wetness	Rooting		Black ash			hemlock,
	İ	i	depth	İ	Eastern hemlock			northern
	İ	j	İ	İ	Eastern white pine	i		white cedar,
					Paper birch			red maple,
					Quaking aspen			yellow birch
					Red maple		34	
				!	Sugar maple			
	 		 		White spruce   Yellow birch		 	 
	 		 		reliow birch	 	 	 
Shingleton	Slight	Unsuited:	Severe:	Moderate:	Balsam fir			Eastern white
		Slope	Rooting	Droughty	Basswood			pine,
			depth		Bigtooth aspen			tamarack,
					Eastern hemlock	:		white spruce
					Eastern hophornbeam			
					Eastern white pine			
	 				Quaking aspen		86	 
	l I		l I	I I	Red maple		   39	l I
	 		 		Yellow birch			 
	! 		 			 		
Rock outcrop.								
241:	 	I I	 		[ ]	 	 	 
Cathro	Slight	Poorly	  Severe:	  High:	Balsam fir	40	   72	
		suited:	Wetness	Wetness	Black spruce	:	29	
	İ	Wetness			Eastern arborvitae	:	29	İ
	İ	İ	İ	İ	Paper birch			İ
	I	1		I	Red maple	40	29	
	I	1	1	I .				
		İ			Tamarack	35	29	İ

Table 7.--Forestland Management and Productivity--Continued

		Site preparation  Well suited  Well suited	Wetness	Seedling   mortality     	Common trees	index	Volume	Suggested trees to plant				
Gay S1 242B:     Kalkaska S1			Wetness	Wetness               	Balsam fir   Black ash   Eastern hemlock   Paper birch   Quaking aspen   Red maple   White spruce   Yellow birch	53         62 	102         39 	               				
Kalkaska   S1	light	Well suited	          Slight	 	light	Well suited	        Slight	            Moderate:	Quaking aspen  Red maple  White spruce  Yellow birch	   62 	   39 	 
Kalkaska   S1	light	Well suited	        slight	          Moderate:	Red maple   White spruce   Yellow birch	62	39 	 				
Kalkaska   S1	light	Well suited	          Slight	          Moderate:	White spruce   Yellow birch  	i		       				
Kalkaska   S1	light	Well suited	      Slight	        Moderate:	Yellow birch		!	   				
Kalkaska   S1	light	Well suited	  Slight 	Moderate:	į	į	į	İ				
					Eastern white pine		ļ	Eastern white				
The second secon				Droughty	Jack pine		57	pine, jack				
The second secon					Paper birch			pine, red				
The second secon					Quaking aspen	1		pine.				
The second secon			   		Red maple   Red pine		   64 	   				
Kalkaska Sl												
	light	Well suited	Slight	Moderate:	Eastern white pine			Eastern white				
!				Droughty	Jack pine		57	pine, jack				
					Paper birch			pine, red				
					Quaking aspen			pine.				
			   		Red maple   Red pine		   64	   				
242F: Kalkaska S1	light		    Slight	  Moderate:	American beech	!		  -  Eastern white				
		Slope		Droughty	Eastern white pine			pine, jack				
			 		Jack pine		73	pine, red				
l I			l I	1	Paper birch   Quaking aspen			pine.				
			 	1	Red maple			 				
			   		Red pine		82	   				
243:	j	İ	İ	İ	İ	İ	į	į				
Markey Sl	light	Poorly	Severe:	High:	Black spruce							
		suited: Wetness	Wetness   	Wetness 	Northern white cedar  Tamarack		 	   				
245B:			İ	İ		i	i	İ				
Trout Bay Sl	light	Poorly	Severe:	High:	Arborvitae			i				
	j	suited:	Wetness	Wetness	Balsam fir	j	i					
		Wetness	Rooting		Black ash							
	İ	l İ	depth		Eastern hemlock							
					Eastern white pine							
			 		Paper birch   Red maple		34	 				
Lupton S1	light	Poorly	  Severe:	  High:	  Balsam fir	 	 	   				
-		suited:	Wetness	Wetness	Black spruce			İ				
		Wetness	İ	İ	Northern white cedar			İ				
j	i			İ	Paper birch			İ				
j	j	l i			Red maple		i					
j	j	l i			Tamarack							

Table 7.--Forestland Management and Productivity--Continued

	   		 		Potential prod	uctivi	ty	 
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
245B:	 					 	 	 
Gongeau	Slight 	Poorly   suited:	Severe: Wetness	High:   Wetness	Arborvitae  Balsam fir		 	 
		Wetness	Rooting		Black ash			
			depth	!	Eastern hemlock			
					Eastern white pine			
	 		l I		Paper birch			 
	l I		 	I I	Quaking aspen		   34	 
	   		   		Yellow birch			   
246B: Garlic	   	    Well suited	    Gliabt	    Moderate:	 	   	   	    Eastern white
Gallic	SIIGHC	Well Suited	BIIGHC	Droughty	Bigtooth aspen		 	pine, red
	! 	i	 	Dioagney	Eastern hemlock	:	 	pine, red
	İ	i		İ	Eastern white pine	:		
	İ	j	İ	İ	Paper birch			İ
					Quaking aspen			
					Red maple			
				!	Red pine		139	
	 		 		Sugar maple  Yellow birch		39 	 
246D:	 					 	 	 
Garlic	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
				Droughty	Bigtooth aspen			pine, red
					Eastern hemlock	:		pine.
	l I		 	I I	Eastern white pine  Paper birch		 	 
	 		 		Quaking aspen		 	 
	 			İ	Red maple			 
		i		i	Red pine		139	
	İ	i		İ	Sugar maple		39	
	  -	į		İ	Yellow birch	i I		
246E: Garlic	    Slight	Poorly	    Slight	  Moderate:	American beech	   	   	    Eastern white
		suited:		Droughty	Bigtooth aspen	:		pine, red
	İ	Slope	İ	j	Eastern hemlock			pine.
					Eastern white pine			
					Paper birch			
				!	Quaking aspen			
					Red maple			
	 		 	1	Red pine   Sugar maple		139   39	 
	 				Yellow birch			 
248B:	 		 			 	 	 
Escanaba	Slight	Well suited	Slight	Low	Balsam fir	:		Eastern white
	 	ļ.	  -		Basswood			pine, red
	 	I I	 	I I	Bigtooth aspen  Eastern hemlock	 	 	pine,
	 		 		Eastern nemiock	 	 	tamarack, white spruce
	! 		! 		Eastern white pine		 	whice shine
	İ	i		i	Quaking aspen		91	
	İ	į		İ	Red maple			İ
	i .	i	I	1			41	I
					Sugar maple	00	1 41	l

Table 7.--Forestland Management and Productivity--Continued

	 		   		Potential produ	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees	!	  Volume  of wood  fiber*	Suggested trees to plant
248B:			 					
Greylock	Slight	Well suited	Slight	Low	Balsam fir		 	Eastern white pine, red
	l I	l	l I		Bigtooth aspen		1	pine, red
	 		 		Eastern hemlock			tamarack,
	I I		 		Eastern hophornbeam			white spruce
	İ		i I		Eastern white pine			""""
	i	i			Quaking aspen		91	
	İ	i		İ	Red maple			! 
	İ	į	İ	İ	Sugar maple			<u> </u>
	  -		   	İ	Yellow birch		i	   
248D:			   					   
Escanaba	blight	Well suited	siignt	Low	Balsam fir		 	Eastern white
	l I	l I	l I		Basswood		1	pine, red
	l I		 		Eastern hemlock			tamarack,
	I I	l I	 	l I	Eastern hophornbeam			white spruce
	İ		i I		Eastern white pine			
	i	i			Quaking aspen		91	
	İ	i		İ	Red maple			! 
	İ	į	İ	İ	Sugar maple			
	į	į		į	Yellow birch		j	
Greylock	Slight	Well suited	  Slight	Low	Balsam fir		 	  Eastern white
					Basswood			pine, red
					Bigtooth aspen			pine,
					Eastern hemlock			tamarack,
			 		Eastern hophornbeam			white spruce
	l I	l I	l I		Eastern white pine Quaking aspen		   91	l I
	 		 		Red maple			 
	 		 		Sugar maple		:	 
			   		Yellow birch			   
248E:	 							
Escanaba	Slight	Poorly	Slight	Low	American beech			Eastern white
		suited:			Balsam fir			pine, red
		Slope			Basswood			pine,
	l I	l I	l I		Bigtooth aspen   Eastern hemlock		 	tamarack,   white spruce
	 		 		Eastern hophornbeam			white spidee
	l I		 		Eastern white pine	1	 	 
			!   		Quaking aspen	78	91 	   
	 		 		Sugar maple		41	 
					Yellow birch			
Greylock	  Slight	  Poorly	  Slight	Low	American beech	 	 	  Eastern white
-	į	suited:	. <u>-</u>	İ	Balsam fir			pine, red
		Slope			Basswood	j	j	pine,
					Bigtooth aspen			tamarack,
					Eastern hemlock			white spruce
	ļ.	ļ		ļ	Eastern hophornbeam			
	ļ	ļ			Eastern white pine			
					Quaking aspen		91	
	Į.				Red maple			
	ļ		  -		Sugar maple		41	 
	1	1	I	1	Yellow birch			I

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
249B:	 		 			 	 	
Sauxhead	Slight	Poorly	Severe:	High:	American beech			Eastern white
		suited:	Wetness	Droughty	Bigtooth aspen		75	pine,
		Rock	Rooting	Wetness	Eastern hemlock			tamarack,
	!	fragments	depth	!	Eastern white pine			white spruce
					Paper birch			
	!			!	Quaking aspen			
			 		Red maple   Yellow birch		 	
Skandia	    Slight	Poorly	Severe:	  High:	Arborvitae		 	
brandia	bright	suited:	Wetness	Wetness	Balsam fir			
		Wetness	Rooting	We cheep	Black spruce		 	
	 	Wechess	depth		Eastern hemlock			
	 		depth		Eastern white pine			
			 		Red maple		 	
	i	i	! 	İ	Tamarack			
					White spruce			
250B:	 		 			 	 	
Chocolay	Slight	Poorly	Moderate:	High:	American beech			Eastern white
		suited:	Wetness	Wetness	Balsam fir			pine,
		Wetness	Rooting	Droughty	Bigtooth aspen			tamarack,
		Rock	depth		Eastern hemlock			white spruce
		fragments			Eastern white pine			
					Paper birch			
					Quaking aspen			
					Red maple			
					Sugar maple		38	
					White spruce			
	 				Yellow birch	 	 	
Jacobsville	Slight	Poorly	Severe:	High:	Arborvitae	i		
		suited:	Wetness	Wetness	Balsam fir			
		Rock			Black ash	55	35	
		fragments			Eastern hemlock			
					Paper birch			
					Quaking aspen			
					Red maple			
	 		 		White spruce   Yellow birch		 	
251B: Greylock	  Slight	  Well suited	  Slight	Low	  Balsam fir	 	 	Eastern white
2					Basswood		 	pine, red
	i	i	İ	i	Bigtooth aspen	1		pine,
	i	i	İ	i	Eastern hemlock			tamarack,
	i	į	İ	i	Eastern hophornbeam	i		white spruce
	i	į	İ	i	Eastern white pine	i		
	 	İ	 	į	Quaking aspen	78	91 	
	1		 	1	Sugar maple		   41	
	1		 	1	Yellow birch		41	
	1	I	I	T	Terrow Dirent			l

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees	1	  Volume  of wood  fiber*	Suggested trees to plant
251D:		    Mall audead	 		   Palaam film		   	 
Greylock	SIIGHE	Well suited	SIIGHU	Low	Balsam fir   Basswood			Eastern white   pine, red
	İ				Bigtooth aspen	:		pine,
	İ	İ	ĺ	İ	Eastern hemlock			tamarack,
		ļ	!		Eastern hophornbeam	:		white spruce
	1				Eastern white pine	:		 
	1		 		Quaking aspen   Red maple			 
	İ		l I		Sugar maple			! 
	İ		  -	İ	Yellow birch		i	    -
252A:		   De est]	 	    High:	 		100	 
Finch	Slight	Poorly   suited:	Moderate:   Wetness	Wetness	Eastern white pine		100   72	Eastern white   pine, red
	İ	Restrictive			Paper birch	!	!	pine,
	İ	layer	İ	j	Quaking aspen		57	tamarack,
					Red maple	56	36	white spruce
			 		Red pine	56 	88 	 
Kinross	Slight	Well suited	Severe:	High:	Balsam fir	j	j	i
	!		Wetness	Wetness	Black spruce	:		
					Eastern white pine	:		
	1		 		Jack pine  Northern white-cedar		 	 
	1		 		Paper birch			 
	İ				Quaking aspen	:	!	
	İ	İ	ĺ	İ	Red maple			İ
			 		Tamarack	 	 	 
254C: Kalkaska	  Slight	  Well suited	  Slight	  Moderate:	American beech		 	  Eastern white
				Droughty	Bigtooth aspen	:		pine, red
	İ	İ	ĺ	İ	Eastern white pine			pine.
		ļ	!		Paper birch			
					Quaking aspen   Red maple		 	
	1	l I	 	I	Red mapre		!	 
			İ		Sugar maple		38	
Blue Lake	Slight	Well suited	  Slight	Moderate:	American beech			Eastern white
		l I	 	Droughty	Bigtooth aspen Eastern hemlock		 	pine, red
		i i	 		Eastern white pine	1		pine.
	İ	İ	İ		Paper birch			
	İ	İ	ĺ	İ	Quaking aspen			ĺ
	!	ļ	!	İ	Red maple			!
					Red pine		136   38	
			 		Sugar maple    Yellow birch			 
254E:						ļ	 	 
Kalkaska	Slight	Poorly	Slight	Moderate:	American beech	!		Eastern white
		suited:	! 	Droughty	Bigtooth aspen Eastern white pine	:	 	pine, red pine.
			į	į	Paper birch		i	
		ļ	ļ	!	Quaking aspen			!
					Red maple	72	126	 
			I I		Red pine   Sugar maple	73 60	136   38	 
	1		i i		gup-0		50	I I

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion hazard	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
254E:			 			 	 	 
Blue Lake	Slight     	Poorly   suited:   Slope	Slight   	Moderate:   Droughty 	American beech  Bigtooth aspen  Eastern hemlock  Eastern white pine	 	   	Eastern white pine, red pine.
	 		 		Paper birch Quaking aspen		 	
	   		   		Red maple   Red pine   Sugar maple	73	   136   38	 
	j I	İ	 	į į	Yellow birch	i I		
254F: Kalkaska	  Slight	Unsuited:	  Slight	  Moderate:	American beech	   	   	Eastern white
	 	Slope	 	Droughty	Bigtooth aspen   Eastern white pine			pine, red
				-	Paper birch			pine.
	 		 		Quaking aspen   Red maple		 	
	 		 		Red pine   Sugar maple		136   38	
Blue Lake	  Slight	  Unsuited:	  Slight 	Moderate:	American beech  Bigtooth aspen		   	  Eastern white
		Slope		Droughty	Eastern hemlock			pine, red pine.
	 		 		Eastern white pine  Paper birch		 	
	 	İ	   		Quaking aspen   Red maple		 	 
					Red pine	73	136	
	 		 		Sugar maple   Yellow birch		38	 
255D:	 		 			 	 	
Wallace	Slight 	Poorly   suited:	Severe: Rooting	Moderate: Droughty	Balsam fir   Eastern hemlock	1	 	Eastern white pine, red
		Restrictive layer	depth		Eastern white pine		96	pine, white spruce.
	   	Tayer	   		Quaking aspen   Red maple	75	87   87	spidce.
			 		Red pine	59	99	
	 		 		Sugar maple	 	 	
256B: Whitewash	  Slight	  Well suited	  Slight	Low	  Eastern hophornbeam	 	 	Eastern white
	į	į		į	Red maple			pine, red
	   		   		Sugar maple   Yellow birch		40 	pine. 
266A: Spot	    Slight	    Poorly	    Severe:	    High:	 	   	   	   
-		suited:	Wetness	Wetness	Jack pine	j		
	 	Restrictive	 		Northern white cedar  Paper birch		 	
		layer 	 		Quaking aspen		22	[ 
	İ	į	İ	i	Tamarack			

Table 7.--Forestland Management and Productivity--Continued

	į				Potential prod	uctivi	ty	 
Map symbol and soil name	   Erosion   hazard 	Site  preparation 	   Windthrow   hazard   	   Seedling   mortality   	   Common trees 		  Volume  of wood  fiber*	Suggested trees to plant
266A:	 		 		[ [	 	 	 
Finch	Slight	Poorly	Moderate:	High:	Eastern white pine	53	100	Eastern white
	İ	suited:	Wetness	Wetness	Jack pine		72	pine, red
	İ	Restrictive	İ	i	Paper birch	54	55	pine,
	İ	layer	İ	İ	Quaking aspen	56	57	tamarack,
	İ	į	İ	İ	Red maple	56	36	white spruce
	į	į	į	į	Red pine	56	88	_
267A:	 		 			 	 	 
Finch	Slight	Poorly	Moderate:	High:	Eastern white pine	53	100	  Eastern white
		suited:	Wetness	Wetness	Jack pine	52	72	pine, red
		Restrictive			Paper birch	54	55	pine,
		layer			Quaking aspen	56	57	tamarack,
		j	ĺ	İ	Red maple	56	36	white spruce
		İ		į	Red pine	56	88	
268C:	 		 			 	 	 
Munising	Slight	Poorly	Moderate:	High:	Balsam fir	j	j	Eastern white
		suited:	Wetness	Wetness	Basswood			pine, red
	ĺ	Wetness	ĺ	İ	Bigtooth aspen			pine,
					Eastern hemlock			tamarack,
					Eastern hophornbeam			white spruce
					Eastern white pine			
					Quaking aspen	78	91	
					Red maple			
					Sugar maple	66	41	
					Yellow birch			
Frohling	  Slight	  Well suited	  Severe:	Low	  Balsam fir	 		  Eastern white
		j	Rooting	İ	Basswood			pine, red
			depth		Bigtooth aspen			pine,
					Eastern hemlock			tamarack,
					Eastern hophornbeam			white spruce
					Eastern white pine			
					Quaking aspen	78	91	
					Red maple			
					Sugar maple	66	41	
	1		 		Yellow birch			 
Cookson	  Slight	  Well suited	  Slight	Low	  Balsam fir	 	 	  Eastern white
					Basswood			pine,
					Bigtooth aspen			tamarack,
					Eastern hemlock			white spruce
	[				Eastern hophornbeam			
	[				Eastern white pine			
	[				Quaking aspen	78	91	
					Red maple			
		!	!		Sugar maple		41	
		1		1	Yellow birch			I

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion hazard	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
269E:	 		 		] 	 	 	 
Frohling	Slight	Poorly	Severe:	Low	American beech			Eastern white
	İ	suited:	Rooting	İ	Balsam fir	i		pine, red
	İ	Slope	depth	İ	Basswood			pine,
	İ	į	İ	İ	Bigtooth aspen	i		tamarack,
	İ	j	İ	İ	Eastern hemlock			white spruce.
	ĺ	İ		İ	Eastern hophornbeam			ĺ
	ĺ	ĺ			Eastern white pine			
					Quaking aspen	78	91	
					Red maple			
					Sugar maple	66	41	
	 		 		Yellow birch			
Garlic	  Slight	Poorly	  Slight	  Moderate:	American beech	 		  Eastern white
		suited:		Droughty	Bigtooth aspen			pine, red
		Slope			Eastern hemlock			pine.
					Eastern white pine			
					Paper birch			
					Quaking aspen			
					Red maple			
		ļ			Red pine		139	
		ļ			Sugar maple			
	 		 		Yellow birch	 	 	 
Cookson	Slight	Poorly	Slight	Low	American beech		ļ	Eastern white
		suited:			Balsam fir			pine, red
		Slope			Basswood	1		pine, white
					Bigtooth aspen			spruce.
					Eastern hemlock		 	
	 	ļ	 		Eastern hophornbeam		1	 
	l I	l I	l I	l I	Eastern white pine		   91	 
	l I		l I		Red maple			 
	 		 	1	Sugar maple		41	 
					Yellow birch			
272C:	 				 	 	 	 
Munising	Slight	Poorly	Moderate:	  High:	American beech			Eastern white
-	İ	suited:	Wetness	Wetness	Balsam fir		i	pine, red
	İ	Wetness	İ	İ	Basswood	i		pine,
	İ	į	İ	İ	Bigtooth aspen	i		tamarack,
					Eastern hemlock	j	i	white spruce.
					Eastern hophornbeam			
					Eastern white pine			
					Quaking aspen	78	91	
					Red maple			
					Sugar maple	66	41	
	I	1	1	1	Yellow birch	I .		I.

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	Eastern white pine, red pine, tamarack, white spruce
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	trees to
272C:	 		 				 	 
Yalmer	Slight	Poorly	Moderate:	High:	American beech    Balsam fir			!
	l I	suited:	Wetness	Wetness Droughty	Basswood		 	: -
	İ	We chess	 	Dioagney	Bigtooth aspen			: -
	İ	İ	İ		Eastern hemlock			
	[				Eastern hophornbeam			
					Eastern white pine			
					Quaking aspen			
	}		 	1	Red maple		:	 
			   		Yellow birch			
Frohling	  Slight	  Well suited	'	Low	American beech			
			Rooting		Balsam fir			Eastern white   pine, red   pine, tamarack, white spruce.
	l I	l I	depth		Basswood   Bigtooth aspen		 	: -
	i I		 		Eastern hemlock			!
	i	İ	<u> </u>	İ	Eastern hophornbeam			i
	İ	İ	İ	Eastern white pine			İ	
				Quaking aspen				
	}				Red maple		:	
			Sugar maple   Yellow birch		41	 		
275B:	[ [		 		1	 	 	 
Munising	Slight	Poorly	  Moderate:	High:	Balsam fir			Eastern white
	İ	suited:	Wetness	Wetness	Basswood			pine, red
	ļ	Wetness			Bigtooth aspen		:	: -
	}				Eastern hemlock			!
	}		 	1	Eastern hophornbeam		 	white spruce
	ì		! 		Quaking aspen		91	! 
	İ	İ	İ		Red maple			
	Ì	j	İ	İ	Sugar maple	66	41	į
	[ [		 		Yellow birch	 	 	 
Cookson	Slight	Well suited	Slight	Low	Balsam fir   Basswood		   	
	}		 	1	Bigtooth aspen		 	pine, red
	ì		 		Eastern hemlock			spruce.
	į	j	İ	İ	Eastern hophornbeam	i		į
	[				Eastern white pine			
	ļ				Quaking aspen		91	
	l I		 		Red maple		   41	 
	 		 		Yellow birch			 
281E:	[ [		 			 	 	 
Mongo	Severe:	Poorly	  Slight	Low	Balsam fir		 	  Eastern white
	Slope	suited:	l		Bigtooth aspen		i	pine, red
		Slope			Eastern hemlock			pine,
	 		  -		Eastern white pine			tamarack,
	[ [	 	 	I I	Paper birch   Quaking aspen		 	white spruce
			 		Red maple			
	į	į	İ	İ	Sugar maple		!	İ
	I	1	I	İ	White spruce	l	i	I
		1	l	1	Yellow birch		1	I

Table 7.--Forestland Management and Productivity--Continued

	   		    -		Potential produ	uctivi	ty	    -
Map symbol and soil name	Erosion hazard	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees	!	  Volume  of wood  fiber*	Suggested   trees to   plant
282B:					 	   		 
Furlong	Slight 	Well suited	Rooting	Moderate:   Droughty	Balsam fir   Basswood			Eastern white pine,
	İ	j	depth	į	Bigtooth aspen	j	i	tamarack,
					Eastern hemlock			white spruce
		ļ		!	Eastern hophornbeam			!
					Eastern white pine			
	l I				Quaking aspen		86 	 
	 		 		Sugar maple		39	 
					Yellow birch			
Shingleton	  Slight	  Well suited	  Severe:	  Moderate:	  Balsam fir	 	 	  Eastern white
			Rooting	Droughty	Basswood			pine,
			depth		Bigtooth aspen			tamarack,
		ļ		!	Eastern hemlock			white spruce
					Eastern hophornbeam			
	 	l I	 	I I	Eastern white pine  Quaking aspen		   86	 
	 		 		Red maple			 
	 	İ			Sugar maple		39	! [
					Yellow birch			
282D:	 		 			 	 	
Furlong	Slight	Well suited		Moderate:	American beech			Eastern white
		ļ	Rooting	Droughty	Balsam fir			pine,
	 		depth		Basswood		 	tamarack,
	 		 	1	Bigtooth aspen   Eastern hemlock			white spruce
	 	İ			Eastern hophornbeam	:		! [
		i		i	Eastern white pine	1		İ
	İ	j	İ	İ	Quaking aspen	74	86	İ
					Red maple			
	 		 		Sugar maple   Yellow birch		39	 
Shingleton	    cl:~b+	  Well suited	Corromo	Moderate:	American beech	 	 	Eastern white
SHINGIECOH	SIIGHC	Well Suited	Rooting	Droughty	Balsam fir			pine,
	 		depth		Basswood			tamarack,
	İ	İ	İ	İ	Bigtooth aspen			white spruce
					Eastern hemlock			
					Eastern hophornbeam			
		ļ			Eastern white pine			
	 		l I		Quaking aspen		86 	
	 		 	1	Sugar maple		39	l I
					Yellow birch			
	I	1				 	 	 
284B:						1		
284B: Steuben	    Slight	  Well suited	  Slight	Low	Balsam fir			Eastern white
	  Slight 	  Well suited 	  Slight 	Low	Bigtooth aspen		 	Eastern white   pine, red
	  Slight 	  Well suited   	  Slight 	Low	Bigtooth aspen  Eastern hemlock	 	 	pine, red pine,
	  Slight   	  Well suited   	  Slight   	Low	Bigtooth aspen  Eastern hemlock  Eastern white pine	   	   	pine, red pine, tamarack,
	  Slight   	  Well suited     	  Slight   	Low     	Bigtooth aspen  Eastern hemlock  Eastern white pine  Paper birch	   	   	pine, red pine, tamarack,
	  Slight     	  Well suited       	  Slight   	Low       	Bigtooth aspen Eastern hemlock Eastern white pine Paper birch Quaking aspen	     	     	pine, red pine, tamarack,
	  Slight   	  Well suited         	Slight    -  -	Low         	Bigtooth aspen Eastern hemlock Eastern white pine Paper birch Quaking aspen Red maple	     	     	pine, red pine, tamarack,
284B: Steuben	  slight       	  Well suited           	Slight 	Low	Bigtooth aspen Eastern hemlock Eastern white pine Paper birch Quaking aspen	           61	     	pine, red pine,

Table 7.--Forestland Management and Productivity--Continued

	i I	İ	 		Potential prod	ıctivi	ŧу	pine, red pine, tamarack, white spruce.  Eastern white pine, red pine.  Eastern white pine, red pine, tamarack, white spruce.
Map symbol and soil name	Erosion hazard	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	trees to
284B:			 			 		
Blue Lake	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
				Droughty	Bigtooth aspen			pine, red
					Eastern hemlock			pine,
					Eastern white pine			tamarack,
					Paper birch			white spruce
					Quaking aspen			
					Red maple			
					Red pine		136	
					Sugar maple			
	[ 		 		Yellow birch	 		 
Kalkaska	Slight	  Well suited	Slight	Moderate:	American beech			  Eastern white
				Droughty	Bigtooth aspen			pine, red
					Eastern white pine			pine.
					Paper birch			
					Quaking aspen			
					Red maple			
					Red pine			
			 		Sugar maple	60 	38	 
84D:			 				 	 
Steuben	Slight	Well suited	Slight	Low	Balsam fir			Eastern white
					Bigtooth aspen			pine, red
					Eastern hemlock			pine,
					Eastern white pine			tamarack,
					Paper birch			white spruce
					Quaking aspen			
					Red maple			
					Sugar maple			
	 		 		White spruce Yellow birch		 	 
Blue Lake	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
				Droughty	Bigtooth aspen			pine, red
					Eastern hemlock			pine,
					Eastern white pine			tamarack,
					Paper birch			white spruce
					Quaking aspen			
					Red maple			
	!			!	Red pine	:		
	 	l	 		Sugar maple	60 	38 	 
Kalkaska	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
	ļ			Droughty	Bigtooth aspen			pine, red
	ļ				Eastern white pine			pine.
	ļ				Paper birch			
	Į.				Quaking aspen			
	Į.				Red maple			
	Į.				Red pine		136	
	1	I	I	1	Sugar maple	60	38	I

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ŧу	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
284E:			 		]	 	 	
Steuben	Slight	Poorly	Slight	Low	Balsam fir			Eastern white
		suited:			Bigtooth aspen			pine, red
		Slope			Eastern hemlock			pine,
					Eastern white pine			tamarack,
					Paper birch			white spruce.
					Quaking aspen			
					Red maple			
					Sugar maple		38	
					White spruce			
			 		Yellow birch		 	 
Blue Lake	Slight	Poorly	Slight	Moderate:	American beech			Eastern white
	!	suited:	!	Droughty	Bigtooth aspen			pine, red
	!	Slope	!	!	Eastern hemlock			pine,
					Eastern white pine			tamarack,
					Paper birch			white spruce.
					Quaking aspen			
				Red maple				
					Red pine		136	
		 		Sugar maple   Yellow birch		38 	 	
	j 	į .		į	į	į		<u>.</u>
Kalkaska	Slight	Poorly	Slight	Moderate:	American beech			Eastern white
		suited:		Droughty	Bigtooth aspen			pine, red
		Slope			Eastern white pine			pine.
					Paper birch		 	
	1	l I	l I		Quaking aspen		 	 
	1		l I	I I	Red maple		136	 
	1	l I	l I		Red pine		38	 
					Sugar maple	60	38	
285B:		 	   <b>                                  </b>		 			
Halfaday	Slight	Well suited	!	Low	American beech			Eastern white
			Wetness		Bigtooth aspen			pine,
	1		l I	I I	Eastern hemlock		 	tamarack,
	l I	l I	l I	I	Eastern white pine  Paper birch		 	white spruce.
	1		l I	I I	Quaking aspen		 	 
	l I	l I	l I	I	Red maple		 	l I
	l I		l I		Red pine		136	 
	1		 		Sugar maple	:	38	 
		İ			Yellow birch			
Kinross	  Slight	  Well suited	  Severe:	  High:	  Balsam fir	 	 	 
			Wetness	Wetness	Black spruce			
	i	i			Eastern white pine		 	İ
		i	İ	i	Jack pine			
	i	i	İ	i	Northern white-cedar		 	İ
	i	i	i	i	Paper birch		 	İ
	i	i	i	i	Quaking aspen		32	İ
	i	i	į	i	Red maple			İ
	i	i	į	i	Tamarack			İ
	i	i	i	i	i	i	i i	i

Table 7.--Forestland Management and Productivity--Continued

	   		j I	į į	Potential prod	ıctivi	ty	pine, red pine, tamarack, white spruce.  Eastern white pine, tamarack, white spruce.
Map symbol and soil name	Erosion hazard	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	trees to
286B: Greylock	    Slight	    Well suited	    Slight	    Low	    Balsam fir	   	   	    Eastern white
-	ĺ	j	ĺ	İ	Basswood	i	j	pine, red
					Bigtooth aspen			: -
			!		Eastern hemlock			
					Eastern hophornbeam			white spruce.
					Eastern white pine	:		
					Quaking aspen			
	l I		 		Red maple			 
					Yellow birch			    -
Cookson	  Slight	  Well suited	  Slight	Low	  Balsam fir			Eastern white
					Basswood	!	!	: -
					Bigtooth aspen			
					Eastern hemlock		 	white spruce.
	l I		I I	l I	Eastern white pine		1	 
	 		 		Quaking aspen		!	 
	! [	i i	l I		Red maple			 
	i	i	i		Sugar maple			! 
	į		į		Yellow birch		j	į
287B:	 		 			 	 	 
McMaster	Slight	Well suited	!	Low	American beech			Eastern white
			Wetness		Balsam fir			: -
					Basswood			: -
	l I		 		Bigtooth aspen  Eastern hemlock		 	!
	 		 		Eastern hemlock			white spidce.
	l I		 		Eastern hophornbeam			 
	İ	i	İ		Eastern white pine			İ
	İ		İ	İ	Quaking aspen			İ
	ĺ	İ	ĺ		Red maple			
					Sugar maple	62	39	
	 		 		Yellow birch	 	 	 
Davies	Slight	Poorly suited:	Severe:   Wetness	High:	Balsam fir   Black ash		105	
	I I	Rock	"	Hechess	Eastern arborvitae			I 
	İ	fragments	İ		Eastern hemlock			! 
	İ		İ		Paper birch	:		İ
	İ	i	İ	İ	Red maple		35	į
	İ	j	İ	İ	White spruce		i	İ
	 		 		Yellow birch		i	 
290A:	 		 		]	 	! 	 
Namur	Slight	Unsuited:	Severe:	Moderate:	Eastern white pine	38		Eastern white
		Restrictive	Rooting	Droughty	Northern white cedar		49	pine,
		layer	depth		Sugar maple	49	32	tamarack,
	1	i i			White ash	56	36	white spruce.

Table 7.--Forestland Management and Productivity--Continued

	   		    -	İ	Potential produ	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
290A:			 			 	 	 
Ruse	Slight	Poorly	Severe:	High:	Balsam fir		71	Balsam fir,
		suited:	Wetness	Wetness	Balsam poplar			black spruce
		Wetness	Rooting		Black ash   Eastern hemlock		 	eastern hemlock,
	 		depth		Northern white-cedar		 	northern
	İ	i	i	i	Paper birch		 	white cedar,
	İ	i	İ	İ	Quaking aspen			paper birch,
		j	ĺ	İ	Red maple			quaking
	 		 		Yellow birch	 	 	aspen.
292B:		   Do on 1	   Wadamata	     Tri = h :		İ	   	    Eastern white
Mashek	Siight	Poorly suited:	Moderate:	High:   Wetness	American beech Balsam fir		 	pine, red
	 	Wetness	Wethers	Wechess	Basswood			pine, red
	İ		İ	i	Bigtooth aspen			tamarack,
	İ	j	į	İ	Eastern hemlock	i	i	white spruce
					Eastern hophornbeam			
	!	ļ	!	İ	Eastern white pine			
					Quaking aspen		91	
	l I		l I		Red maple		   41	l I
					Sugar maple   Yellow birch			
296D: Islandlake	    Slight	    Well suited	    Slight	    Moderate:	American beech	   	   	    Eastern white
	İ	i	İ	Droughty	Bigtooth aspen			pine, red
	ĺ	İ	ĺ	İ	Eastern hemlock			pine.
					Eastern white pine			
				ļ	Paper birch			
					Quaking aspen			
	 		l I		Red maple		   136	 
	 		 		Sugar maple		38	 
					Yellow birch			!   
McMillan	  Slight	  Well suited	  Slight	Low	  Sugar maple	   61	   38	  Eastern white
				ļ	American beech			pine, red
					Eastern hophornbeam			pine, white
	l I	l I	 	I	American basswood		 	spruce.
	 		! [		Yellow birch			 
				į	Quaking aspen		81	
296E:							! 	 
Islandlake	Slight	Poorly	Slight	Moderate:	American beech	1		Eastern white
		suited:		Droughty	Bigtooth aspen			pine, red
	 	Slope	 	I I	Eastern hemlock   Eastern white pine		 	pine.
	 		! 		Paper birch		 	1 
					Quaking aspen			 
		į	į	İ	Red maple			
		j	j	İ	Red pine		136	
					Sugar maple		38	
	1				Yellow birch			

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential produ	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees	!	  Volume  of wood  fiber*	Suggested   trees to   plant
296E:								
McMillan	Slight 	Poorly   suited:	Slight 	Low	Sugar maple   American beech			Eastern white   pine, red
		Slope			Eastern hophornbeam			pine, white
					American basswood			spruce.
	1	l I	 		White ash		 	 
			 		Quaking aspen		81	 
297B:			 				Į I	 
Rubicon	Slight	  Well suited	Slight	Moderate:	Bigtooth aspen	66	75	  Eastern white
		ļ		Droughty	Eastern white pine		75	pine, jack
					Jack pine		!	pine, red
					Northern red oak		!	pine.
	1	l I	l I		Paper birch Quaking aspen		   64	l I
	1		l I		Red maple			 
					Red pine	!	!	 
297D:			 			 	 	 
Rubicon	Slight	  Well suited	  Slight	  Moderate:	Bigtooth aspen	66	   75	  Eastern white
				Droughty	Eastern white pine		!	pine, jack
	İ	į	İ		Jack pine		73	pine, red
	İ	j	j	İ	Northern red oak	j	j	pine.
					Paper birch			
					Quaking aspen	60	64	
	 		 		Red maple		!	 
	į						İ	į
298B: Wurtsmith	  Slight	  Well suited	  Moderate:	  Moderate:	  Bigtooth aspen	 	 	  Eastern white
	į	j	Wetness	Droughty	Eastern hemlock	j	j	pine, jack
					Eastern white pine			pine, red
					Jack pine		55	pine.
					Paper birch			
					Quaking aspen			
	 		 		Red maple		   88	 
Defend		  Well suited		 	In I was 64 a		 	 
Deford	Siight	well suited	Wetness	High:   Wetness	Balsam firBlack ash		 	 
		l I	Wechess	We chess	Eastern hemlock			 
	i	i	i I		Northern white-cedar			! 
	i	i	İ		Paper birch			İ
	İ	i	İ	İ	Quaking aspen		57	
	į	į	ĺ	į	Red maple		ļ	į
299F:	[ 		 			 	 	 
Shelldrake	Slight	Poorly	Slight	Moderate:	American beech	j	j	Eastern white
		suited:		Droughty	Bigtooth aspen			pine, red
	!	Slope	ļ	ļ	Eastern hemlock			pine,
					Eastern white pine			tamarack,
					Paper birch			white spruce
					Quaking aspen			
	I I	l I	 	1	Red maple		120	 
		l I	I I	 	Red pine		139   39	 
			I I		Yellow birch		39	I 
	1	1	I I		I DITOM		-	I I

Table 7.--Forestland Management and Productivity--Continued

			   		Potential prod	uctivi	ty	pine, red pine, tamarack, white spruce.  Eastern white pine, jack pine, red pine.
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	trees to
300F:	 		 			 	 	 
Shelldrake	Slight           	Poorly   suited:   Slope	Slight 	Moderate:   Droughty       	Black cherry   Eastern white pine   Jack pine   Paper birch   Quaking aspen   Red maple   Red pine	     	       	pine, tamarack,
Dune land	     	   	     	     		     	     	pine, red
301F:			 			 	 	 
Cookson	Slight   	Poorly   suited:   Slope	Slight 	Low	American beech  Balsam fir  Basswood		   	: -
					Bigtooth aspen	i	 	
					Eastern hemiock		 	
	į	İ		İ	Eastern white pine			
	 	l I	 		Quaking aspen   Red maple		91 	 
			   		Sugar maple   Yellow birch	66	   41 	   
					Ì	İ	į	
Nykanen	Moderate:   Slope	Poorly   suited:	Severe:   Rooting	High:   Wetness	American beech Balsam fir		 	!
		Slope	depth		Basswood			: -
		ļ	Wetness		Bigtooth aspen			white spruce
	 		 		Eastern hemlock   Eastern hophornbeam	 	 	 
			! 		Eastern white pine			 
	į	İ	İ	İ	Quaking aspen		91	İ
					Red maple			
	   		   		Yellow birch		39 	   
302B: Dillingham	    Slight	    Well suited	    Severe:	Low	American beech	     60	     38	    Eastern white
5		j	Rooting	į	Balsam fir		i	pine, red
			depth		Black cherry			pine.
	 		 		Eastern hemlock   Eastern white pine		 	 
		i	İ	İ	Paper birch			
		ļ	!	!	Quaking aspen			
					Red maple		43	
Kalkaska	  Slight	  Well suited	  Slight	  Moderate:	American beech	 	 	  Eastern white
				Droughty	Bigtooth aspen			pine, red
	 	1	 		Eastern white pine		 	pine.
	[ 		 		Paper birch   Quaking aspen		 	 
	į	j	İ	į	Red maple			İ
					Red pine		136	
	ļ.	į.			Sugar maple	60	38	

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees	1	  Volume  of wood  fiber*	Suggested trees to plant
302D:	 				 			 
Dillingham	Slight	Well suited	Severe:   Rooting	Low	American beech Balsam fir	1	38 	Eastern white   pine, red
	i I	l I	depth	1	Black cherry	1		pine, red
	ì		402011		Eastern hemlock			
	i	i	! 	İ	Eastern white pine	1		İ
	Ì	j	İ	İ	Paper birch	i	j	j
	[				Quaking aspen			
	 		 		Red maple		   39	
	 		 			62	39	 
Kalkaska	Slight	Well suited	Slight	Moderate:	American beech	!		Eastern white
	l I		 	Droughty	Bigtooth aspen			pine, red
	l I	l I	 	l I	Eastern white pine  Paper birch	1	 	pine.
	}		 		Quaking aspen			 
	İ		 		Red maple			 
	i	i	! 	İ	Red pine	1	136	İ
	į			į	Sugar maple	60	38	į
302E:	 		 			 	 	 
Dillingham	Slight	Poorly	Severe:	Low	American beech	60	38	Eastern white
	[	suited:	Rooting		Balsam fir			pine, red
	ļ	Slope	depth	!	Black cherry			pine.
					Eastern hemlock	1		
	}				Eastern white pine			
	 	l I	l I	1	Paper birch   Quaking aspen		 	 
	}		 		Red maple		 	 
					Sugar maple		39	İ
Kalkaska	  Slight	  Poorly	  Slight	  Moderate:	American beech		 	  Eastern white
		suited:		Droughty	Bigtooth aspen	!		pine, red
	İ	Slope	İ		Eastern white pine	:	i	pine.
	Ì	į	İ	İ	Paper birch	j	j	į
					Quaking aspen			
	ļ				Red maple			
	 		 		Red pine   Sugar maple	1	136   38	 
302F: Dillingham	Slight	  Unsuited:	  Severe:	Low	  American beech	   60	   38	  Eastern white
DIIIIIgiidii		Slope	Rooting		Balsam fir			pine, red
	İ	1	depth	İ	Black cherry			pine.
	Ì	j	i -	İ	Eastern hemlock	i	j	i -
	ĺ	j	ĺ	İ	Eastern white pine			ĺ
	[				Paper birch			
	ļ				Quaking aspen			
	 		 		Red maple		   38	 
	Ì	ĺ		<u> </u>		į		
Kalkaska	Slight	Unsuited:	Slight	Moderate:	American beech			Eastern white
	] [	Slope	 	Droughty	Bigtooth aspen		 	pine, red
	 	1	 	1	Eastern white pine  Paper birch		 	pine.
	İ		! 		Quaking aspen			 
	i	ĺ	İ	İ	Red maple			İ
		*	:	:	-		!	i
				Red pine	73	136		

Table 7.--Forestland Management and Productivity--Continued

	 		 	İ	Potential produ	uctivi	ty	pine, red pine, tamarack, white spruce.  Eastern white pine, red pine, tamarack, white spruce.
Map symbol and soil name	Erosion   hazard 	Site  preparation	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	trees to
303B:	 		 			 	 	 
Kiva	Slight 	Well suited	Slight	Low	American beech   Balsam fir		 	Eastern white
		i		i	Basswood	1		: -
		i	İ	İ	Bigtooth aspen			: -
		j		İ	Eastern hemlock			white spruce.
					Eastern hophornbeam			
					Eastern white pine	:		
					Quaking aspen		91	
					Red maple			
	l I		 	I I	Sugar maple   Yellow birch		41 	1
	 	l I	 	i i		 	 	 
Trenary	Slight	  Well suited	Slight	Low	Sugar maple	61	38	Eastern white
		j		į	Eastern hemlock	i		pine, red
					Yellow birch	61	38	pine,
					Red maple	:		
					White spruce			white spruce.
	 				Balsam fir			
	 		l I	I I	American basswood		59 	
	 		 	i i	Quaking aspen			 
		i		İ		İ	! 	
303D:	İ	j	İ	İ	İ	į	İ	j
Kiva	Slight	Well suited	Slight	Low	American beech			Eastern white
					Balsam fir			: -
					Basswood	:		: -
	 		l I	I I	Bigtooth aspen  Eastern hemlock		 	1
	 		 	i i	Eastern hophornbeam	:	 	white spince.
	 	i	! 	i	Eastern white pine	:	 	
		i		İ	Quaking aspen	:	91	
	İ	j	İ	į	Red maple	i		j
					Sugar maple	66	41	
		ļ			Yellow birch			
Trenary	  cliabe	  Well suited	  Cliabt	Low	  Sugar maple	   61	   38	  Fagtorn white
irenary	 		 	LOW	Eastern hemlock			!
		i		i	Yellow birch		38	: -
	İ	j	İ	į	Red maple	i		tamarack,
					White spruce			white spruce.
					Balsam fir			
					American basswood		59	
	 	l I	 		White ash   Quaking aspen		 	 
	 		 		Quaking aspen	 	 	 
303E:	<u> </u>	į	İ	i				İ
Kiva	Slight	Poorly	Slight	Low	American beech		i	Eastern white
		suited:	!	!	Balsam fir			pine, red
		Slope			Basswood			pine,
	 	ļ.			Bigtooth aspen			tamarack,
	 	I I	 	1	Eastern hemlock	 		white spruce.
	 		 	1	Eastern hophornbeam  Eastern white pine	!	 	 
	! 		 		Quaking aspen	!	91	 
	i I	i	i I	1	Red maple			İ
					Red mapre			
	 		 		Sugar maple		41	

Table 7.--Forestland Management and Productivity--Continued

	    -		   		Potential prod	uctivi	ty	   
Map symbol and soil name	Erosion hazard	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
303E:	 		 		 	 	 	
Trenary	Slight	Poorly	Slight	Low	Sugar maple	61	38	Eastern white
		suited:			Eastern hemlock			pine, red
		Slope			Yellow birch	61	38	pine,
					Red maple			tamarack,
		ļ			White spruce			white spruce
					Balsam fir		!	
					American basswood			
					White ash	!	!	
	 		 		Quaking aspen	 	 	 
305B:		į				į	İ	
Wurtsmith	Slight	Well suited	!	Moderate:	Bigtooth aspen			!
			Wetness	Droughty	Eastern hemlock			
	l I	l I	l I	1	Eastern white pine		:	
	l I	l	l I	1	Paper birch			pine.
	 		 	1	Quaking aspen		 	 
	 		 	1	Red maple		1	 
					Red pine	!	88	
Meehan	  Slight	  Well suited	  Moderate:	  High:	  Balsam fir	 	 	  Eastern white
		Wetness	Wetness	Eastern hemlock			Eastern white pine, jack pine, red pine.  Eastern white pine, tamarack, white spruce.	
	İ	į	İ	İ	Eastern white pine	i		-
	İ	j	İ	İ	Paper birch			white spruce
		j	ĺ	İ	Quaking aspen			
					Red maple			
					White spruce			
	 		 		Yellow birch			 
306C:							İ	
Deerton	Slight	Well suited	!	Low	American beech	!		
			Rooting		Bigtooth aspen			pine,
			depth		Eastern hemlock			tamarack,
			 		Eastern white pine		 	white spruce
	l I	l I	l I	1	Quaking aspen		 	 
	 		 	1	Red maple		 	 
	 	l I	 	1	Sugar maple		!	 
					Yellow birch			
Tokiahok	  Slight	  Well suited	  Severe:	  Moderate:	American beech	 	 	  Eastern white
- JA14110K			Rooting	Droughty	Balsam fir			pine, red
	İ	i	depth		Bigtooth aspen		 	pine,
	İ	į		i	Eastern hemlock			tamarack,
	İ	į	İ	İ	Eastern white pine			white spruce
					Paper birch		i	_
					Quaking aspen		i	
					Red maple			
					Sugar maple			
				[	White spruce		:	
	I	1	I	1	Yellow birch			I

Table 7.--Forestland Management and Productivity--Continued

	 		 		Potential produ	uctivi	ty	Suggested trees to plant  Eastern white pine, tamarack, white spruce  Eastern white pine, jack pine, red pine.  Eastern white pine, jack pine, red pine.
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees	:	  Volume  of wood  fiber*	trees to
306C:							 	
Jeske	Slight	Well suited	Severe: Wetness	High:   Wetness	Balsam fir   Eastern hemlock		 	
	 	I I	Rooting	Wechess	Eastern white pine		99	· -
			depth	İ	Paper birch		55	'
	i	İ		i	Quaking aspen		64	
	İ	j		į	Red maple	56	36	İ
					White spruce			
	 		 		Yellow birch			 
307B:						 	 	 
Rubicon	Slight	Well suited	Slight	Moderate:	Bigtooth aspen	66	75	Eastern white
				Droughty	Eastern white pine	45	75	pine, jack
					Jack pine		73	
					Northern red oak			pine.
					Paper birch			
					Quaking aspen		64	
			 		Red maple		36   82	 
						55	62	 
307D:	į			1				
Rubicon	Slight	Well suited	Slight	Moderate:	Bigtooth aspen		75	
				Droughty	Eastern white pine	:	75	
	l I		l I	I I	Jack pine   Northern red oak		73 	
	1		 		Paper birch			pine.
	 	I I	 	i i	Quaking aspen	:	64	 
	i			i	Red maple		36	! 
	į	į		į	Red pine		82	
308B:						 	 	 
Rubicon	Slight	  Well suited	Slight	  Moderate:	Bigtooth aspen	66	75	  Eastern white
				Droughty	Eastern white pine	45	75	pine, jack
					Jack pine	53	73	pine, red
	!			!	Northern red oak			pine.
					Paper birch			
			l I		Quaking aspen		64	 
					Red pine		36   82	 
	į	į		į		ĺ	į	
Sultz	Slight	Well suited	Slight	Moderate:	Balsam fir	:		Eastern white
				Droughty	Eastern white pine			pine, jack
	l I		 	I I	Jack pine   Northern red oak		 	pine, red
	1		 		Paper birch		 	pine.
			! 		Quaking aspen			! 
	<u> </u>	i		i	Red maple			
	į	į		į	Red pine			
308D:			 			 	 	 
Rubicon	  Slight	  Well suited	Slight	  Moderate:	  Bigtooth aspen	   66	   75	  Eastern white
	1			Droughty	Eastern white pine	45	75	pine, jack
	[	Ţ			Jack pine		73	pine, red
	ļ.	ļ		!	Northern red oak			pine.
					Paper birch			
			 		Quaking aspen		64	 
	I I		  -	I I	Red maple	57   53	36   82	 
	I	į.	l I	1	I was bine-	55	1 02	] 

Table 7.--Forestland Management and Productivity--Continued

	İ		   		Potential produc	ıctivi	ty	   
Map symbol and soil name	   Erosion   hazard 	Site  preparation 	   Windthrow   hazard   	Seedling   mortality 	   Common trees		  Volume  of wood  fiber*	Suggested trees to plant
308D:	 		 		 	 	 	 
Sultz	Slight	  Well suited	Slight	Moderate:	Balsam fir			Eastern white
				Droughty	Eastern white pine			pine, jack
	i	i			Jack pine			pine, red
	i	i		i	Northern red oak			pine.
	i	i	İ	İ	Paper birch			İ
	i	i	İ	İ	Quaking aspen			
	i	i	İ	İ	Red maple			
				į	Red pine		j	
309B:	 		 			 	 	 
Rubicon	Slight	Well suited	Slight	Moderate:	Bigtooth aspen	66	75	Eastern white
				Droughty	Eastern white pine	45	75	pine, jack
					Jack pine	53	73	pine, red
					Northern red oak			pine.
					Paper birch			
					Quaking aspen	60	64	
					Red maple	57	36	
			 		Red pine	53	82	
309D:	 		 				İ	
Rubicon	Slight	Well suited	Slight	Moderate:	Bigtooth aspen		75	Eastern white
				Droughty	Eastern white pine	45	75	pine, jack
					Jack pine		73	pine, red
					Northern red oak			pine.
					Paper birch			
					Quaking aspen			
	 		 		Red maple		36   82	
310B:	į							   
Kalkaska	Slight	  Well suited	  Slight	Moderate:	American beech	 		  Eastern white
	ļ			Droughty	Bigtooth aspen			pine, jack
					Eastern white pine			pine, red
					Jack pine		84	pine.
					Paper birch			
					Quaking aspen			 
	l I		 		Red maple		   90	 
	 		 		Red pine   Sugar maple			 
1100	į	į		į		İ	ļ	
B10D: Kalkaska	  Slight	  Well suited	  Slight	  Moderate:	American beech	 	 	  Eastern white
	[			Droughty	Bigtooth aspen			pine, jack
					Eastern white pine			pine, red
	[				Jack pine	59	84	pine.
					Paper birch			
					Quaking aspen			
	ļ			[	Red maple			
	ļ	İ		!	Red pine	56	90	
	1	1	I	1	Sugar maple			I

Table 7.--Forestland Management and Productivity--Continued

	   		   		Potential production	uctivi	ty	   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested trees to plant
310E:					 	 	 	 
Kalkaska	Slight     	Poorly   suited:   Slope	Slight   	Moderate:   Droughty 	American beech Bigtooth aspen Eastern white pine Jack pine	     59	       84	Eastern white pine, red pine.
	   		   		Paper birch    Quaking aspen    Red maple		   	   
	;   	j I	 		Red pine   Sugar maple		90 	 
311B:						 		 
Kalkaska	Slight 	Well suited	Slight 	Moderate:   Droughty	American beech  Bigtooth aspen		 	Eastern white   pine, red
					Eastern white pine			pine.
			 		Jack pine   Paper birch		84 	 
			 	İ	Quaking aspen			 
	İ	j	İ	j	Red maple		i	İ
		ļ			Red pine   Sugar maple		90	
311D:					 	 	 	 
Kalkaska	  Slight 	Well suited	  Slight 	Moderate:   Droughty	American beech Bigtooth aspen		   	  Eastern white   pine, red
	İ	j		i	Eastern white pine			pine.
		ļ		Į.	Jack pine		84	
					Paper birch			
	l I	l I	 	I	Quaking aspen		 	 
					Red pine		90	 
	į į				Sugar maple		 	   
312B:	į	į		į	į	į	į	
Islandlake	Slight	Well suited	Slight	Moderate:	American beech	:	 	Eastern white
	l I		 	Droughty	Bigtooth aspen  Eastern hemlock		 	pine, red pine.
		i		i	Eastern white pine			
	İ	j	İ	İ	Paper birch	i	i	İ
		ļ		İ	Quaking aspen			
					Red maple	:	126	
	l I	l I	 	I	Red pine	73   60	136   38	 
			   		Yellow birch			   
312D:							 	
Islandlake	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
		l I	 	Droughty	Bigtooth aspen  Eastern hemlock		 	pine, red pine.
		1	! 	İ	Eastern white pine		 	pine.
		ĺ		į	Paper birch			ĺ
					Quaking aspen	i	i	
		ļ		ļ	Red maple			
			  -	1	Red pine		136	
		I I	 	I I	Sugar maple   Yellow birch		38 	 
	1	1	 	!	retion Direit		!	1

Table 7.--Forestland Management and Productivity--Continued

			    -		Potential prod	ıctivi	ty	 
Map symbol and soil name	Erosion   Site   hazard  preparatio 		Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested   trees to   plant
313B:							 	
Kalkaska	Slight	Well suited	Slight 	Moderate:   Droughty	American beech  Bigtooth aspen		:	Eastern white   pine, red
			l I	Dioagney	Eastern white pine		:	pine, red
	İ	į	İ	İ	Jack pine		:	
	İ	j	j	İ	Paper birch	i	i	İ
					Quaking aspen			
					Red maple			
	 		 		Red pine   Sugar maple			 
314B:			 			 	 	 
Blue Lake	Slight	Well suited	Slight	Moderate:	American beech		 	Eastern white
	1	l	l I	Droughty	Bigtooth aspen   Eastern hemlock		:	pine, red pine.
			 	1	Eastern white pine			pine.
	i	i	İ		Paper birch			 
	İ	į	İ	İ	Quaking aspen			
	İ	j	ĺ	İ	Red maple			
					Red pine	73	136	
	 		 		Sugar maple   Yellow birch		38 	 
315B:	 		 		 	 	 	 
Blue Lake	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
		ļ		Droughty	Bigtooth aspen			pine, red
					Eastern hemlock			pine.
	1	l I	 	1	Eastern white pine		 	 
	1		l I	1	Paper birch   Quaking aspen		 	 
		İ	 		Red maple		1	 
	i	i	İ	İ	Red pine			! 
	İ	į	İ	İ	Sugar maple		:	İ
	j 	İ	   		Yellow birch	 	 	 
Blue Lake	  Slight	  Well suited	    Slight	Moderate:	American beech	 	 	    Eastern white
				Droughty	Bigtooth aspen			pine, red
					Eastern hemlock	:		pine.
					Eastern white pine			
	1	l I	 	1	Paper birch			 
		 	I I		Quaking aspen		 	I 
					Red maple		136	! 
	İ	į	İ	İ	Sugar maple	:	38	! 
	j I	İ	  -	İ	Yellow birch			 
B16D: Blue Lake	    Slight	    Well suited	    Slight	    Moderate:	American beech	   	   	    Eastern white
			- <b></b>	Droughty	Bigtooth aspen			pine, red
	İ	į	İ		Eastern hemlock			pine.
					Eastern white pine		j	
					Paper birch			
	[	ļ	ļ	ļ	Quaking aspen			
					Red maple			
					Red pine	:	136	  -
		l I	 	1	Sugar maple		38 	 
	1		Į.	1	Yellow birch		!	

Table 7.--Forestland Management and Productivity--Continued

	<u> </u>		   		Potential prod	uctivi	ty	 
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 	Common trees		  Volume  of wood  fiber*	Suggested   trees to   plant
317B: Kalkaska	    Slight	    Well suited	    Slight	  Moderate:	American beech		   	  -  Eastern white
			 	Droughty	Bigtooth aspen Eastern white pine		 	pine, red pine.
	İ	j	İ	İ	Jack pine		84	į
					Paper birch			
					Quaking aspen			
					Red maple		   90	
	 		   		Red pine   Sugar maple		90 	   
317D: Kalkaska	    Slight	    Well suited	    Slight	    Moderate:	American beech	   	   	    Eastern white
alnapna				Droughty	Bigtooth aspen			pine, red
	İ	İ	İ		Eastern white pine			pine.
	İ	İ	ĺ	İ	Jack pine	59	84	ĺ
			!	ļ	Paper birch			!
					Quaking aspen		 	
	l I	l	l I	1	Red maple		   90	 
			   		Sugar maple			   
318B: Islandlake	    Slight	    Well suited	    Slight	    Moderate:	American beech	   	   	    Eastern white
				Droughty	Bigtooth aspen		 	pine, red
	İ	j	İ		Eastern hemlock			pine.
					Eastern white pine			
			!	ļ	Paper birch			!
					Quaking aspen			
	l I	l I	 	I I	Red maple		   136	l I
			! 		Sugar maple		38	 
	į		    -		Yellow birch		 	   
318D: Islandlake	  Slight	  Well suited	    Slight	  Moderate:	American beech	   	   	    Eastern white
		i	į	Droughty	Bigtooth aspen			pine, red
					Eastern hemlock			pine.
					Eastern white pine			
			 		Paper birch Quaking aspen		 	l I
	I I		 		Red maple	 		 
			i	i	Red pine		136	İ
	j I		j I	İ	Sugar maple	60	38	
	į	į	į	į		į	į	į
319B: Islandlake	  Slight	  Well suited	  Slight	  Moderate:	American beech	 	 	  Eastern white
		i	İ	Droughty	Bigtooth aspen			pine, red
		ļ	ļ.	ļ	Eastern hemlock			pine.
					Eastern white pine			
			 	1	Paper birch Quaking aspen		 	 
			I 		Red maple		 	[ ]
		i	İ	i	Red maple		136	İ
	į	į	į	į	Sugar maple	60	38	į
	I	1	I.	1	Yellow birch		i	I.

Table 7.--Forestland Management and Productivity--Continued

	 		   		Potential produ	uctivi	ty	
Map symbol and soil name	Erosion   Site   hazard   preparation		Windthrow   Seedling   hazard   mortality		Common trees		  Volume  of wood  fiber*	Suggested   trees to   plant
319D:			 					 
Islandlake	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
			 	Droughty	Bigtooth aspen   Eastern hemlock		 	pine, red
	I I	l I	l I		Eastern white pine			pine.
	1		 		Paper birch			 
			 		Quaking aspen			 
	i		! 		Red maple		1	i I
	İ	i		İ	Red pine			
	i	i	! 	İ	Sugar maple			
	į	j	İ	j	Yellow birch	j	j	j
319E: Islandlake	  Slight	  Poorly	  Slight	  Moderate:	American beech	 	 	  Eastern white
IBIANGIANE		suited:	biight	Droughty	Bigtooth aspen		1	pine, red
		Slope	 	Dioughey	Eastern hemlock			pine, red
					Eastern white pine			
	İ	į	İ	İ	Paper birch		i	
	İ	j	İ	İ	Quaking aspen		i	İ
	İ	j	ĺ	İ	Red maple			ĺ
					Red pine	73	136	
					Sugar maple	60	38	
					Yellow birch			
319F:	 		 			 	 	 
Islandlake	Slight	Unsuited:	  Slight	Moderate:	American beech			Eastern white
		Slope		Droughty	Bigtooth aspen			pine, red
	İ	i -	İ		Eastern hemlock			pine.
	İ	j	İ	İ	Eastern white pine		j	į
					Paper birch			
					Quaking aspen			
					Red maple			
					Red pine			
					Sugar maple			
			 		Yellow birch	 	 	 
320B:		İ	! 				İ	İ
Kalkaska	Slight	Well suited	Slight	Moderate:	American beech			Eastern white
		ļ		Droughty	Bigtooth aspen			pine, red
					Eastern white pine			pine.
					Jack pine		84	
			 		Paper birch			 
	I I	l I	l I		Quaking aspen   Red maple		 	l I
			 		Red maple		90	 
			 		Sugar maple			 
	İ	İ	İ	İ		İ	İ	İ
321B:	014-55	  Well ===================================	01:01:	Wod				  Roston -3-1:
Kalkaska	slight	Well suited	siignt	Moderate:	American beech Bigtooth aspen		 	Eastern white
		I I	 	Droughty	Eastern white pine		1	pine, red pine.
			1 		Paper birch			Pine.
			! 		Quaking aspen			! 
	i		i I		Red maple		1	
	i	į	İ	i	Red pine			į
	İ	į	İ	İ	Sugar maple		38	İ
	i .	i		:		1		i .

Table 7.--Forestland Management and Productivity--Continued

					Potential produ	uctivi	ty	'   
Map symbol and soil name	Erosion   hazard 	Site  preparation 	Windthrow   hazard 	Seedling   mortality 			  Volume  of wood  fiber*	Suggested trees to plant
321B:			 		 	 	 	 
Deerton	Slight	  Well suited	Moderate:	Low	American beech		 	Eastern white
			Rooting		Bigtooth aspen			pine,
	İ	i	depth	i	Eastern hemlock			tamarack,
	İ	i	 	i	Eastern white pine			white spruce
	İ	i		i	Paper birch			i
		i		i	Quaking aspen			
	İ	i		i	Red maple			i i
		i		i	Sugar maple		38	
		į		į	Yellow birch			
321D:	 				 	 	 	 
Kalkaska	Slight	Well suited	Slight	Moderate:	American beech	i		Eastern white
	İ	j		Droughty	Bigtooth aspen	j		pine, red
	İ	j	ĺ	i	Eastern white pine	j		pine.
	İ	į		i	Paper birch	i		i -
	İ	į		i	Quaking aspen	i		İ
	İ	į		i	Red maple	i		İ
	İ	į		i	Red pine	73	136	İ
	į	į		į	Sugar maple	60	38	
Deerton	  Slight	  Well suited	  Moderate:	Low	American beech	 	 	  Eastern white
		İ	Rooting	İ	Bigtooth aspen			pine,
	İ	j	depth	İ	Eastern hemlock	j		tamarack,
	İ	j	_	İ	Eastern white pine	j		white spruce
	İ	į		İ	Paper birch			Ī
	İ	į		İ	Quaking aspen			İ
	İ	i		İ	Red maple			İ
	İ	i		İ	Sugar maple		38	İ
	i	i	i	i	Yellow birch			i

 $<sup>\</sup>star$  Volume is the yield in cubic feet per acre per year at the age of culmination of the mean annual increment for fully stocked stands.

### Table 8.--Equipment Limitations on Forestland

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Absence of an entry indicates that information was not available or that no rating is applicable. See text for further explanation of ratings in this table)

	-	and limiting limiting seas		Preferred   operating   season(s)		and limiting d operating s	
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads
10.							
Beaches							
	ļ		ļ		!	!	
11C:	Moderatel	Madamatal	Moderatel	Comina		  Well suited	  Woll quited
Deer Park	suited:   Sandiness	Moderately   suited:   Too sandy	Moderately   suited:   Too sandy 	Spring,   fall,   winter. 		  -  -	well suited     
11E:	j	İ	į	j	j	i	j
Deer Park	Moderately   suited:   Slope   Sandiness	Poorly   suited:   Slope   Too sandy	Moderately   suited:   Too sandy 	Spring,   fall,   winter. 	Moderately   suited:   Slope	Poorly   suited:   Slope	Well suited     
11F:	 		 	 			 
Deer Park	Poorly   suited:   Slope	Poorly   suited:   Slope   Too sandy	Poorly   suited:   Slope   Too sandy	Spring,   fall,   winter.	Poorly   suited:   Slope	Poorly   suited:   Slope	Poorly   suited:   Slope
	ļ		ļ		!	!	
12B: Rubicon	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited 	  Well suited   	  Well suited   
12D:	l I		l I	 		 	 
Rubicon	  Moderately   suited:   Sandiness 	Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy 	  Spring,   fall,   winter. 	Well suited	  Moderately   suited:   Slope 	  Well suited     
12E: Rubicon	  Moderately   suited:   Slope   Sandiness	Poorly   suited:   Slope   Too sandy	  Moderately   suited:   Too sandy   Slope	  Spring,   fall,   winter.	Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope
13B:	 		 	 			 
Kalkaska	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy	Moderately   suited:   Too sandy	Spring,   fall,   winter.	Well suited	Well suited   	  Well suited   
13D: Kalkaska	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited   	  Moderately   suited:   Slope	  Well suited   
13E: Kalkaska	  Moderately   suited:   Slope   Sandiness	  Poorly   suited:   Slope   Too sandy	  Moderately   suited:   Too sandy   Slope	  Spring,   fall,   winter. 	  Moderately   suited:   Slope	  Poorly   suited:   Slope 	  Moderately   suited:   Slope 

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seas		Preferred   operating   season(s)		and limiting d operating s	
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	 	   Haul roads	  Log landings   	Logging areas and skid roads
15A: Croswell	  Moderately   suited:   Wetness   Sandiness	  Moderately   suited:   Wetness   Too sandy	  Moderately   suited:   Wetness   Too sandy	  Spring,   fall,   winter.	  Well suited   	    Well suited     	    Well suited     
16A: Paquin	    Moderately   suited:   Wetness	  Moderately   suited:   Wetness	    Moderately   suited:   Wetness	    Year round   	  Well suited 	    Well suited   	    Well suited   
17A: Au Gres	  Poorly   suited:   Wetness	  Poorly   suited:   Wetness	  Poorly   suited:   Wetness	  Summer,   winter.	  Well suited	  Well suited 	  Well suited   
18: Kinross	  Poorly   suited:   Wetness	  Poorly   suited:   Ponding   Wetness	  Poorly   suited:  Wetness	  Summer,   winter. 	  Well suited   	    Well suited     	    Well suited     
19: Deford	  Poorly   suited:   Wetness	  Poorly   suited:   Ponding   Wetness	  Poorly   suited:   Wetness	  Summer,   winter. 	  Well suited   	    Well suited     	    Well suited     
21A: Ingalls	  Poorly   suited:   Wetness   Sandiness	  Poorly   suited:   Wetness   Too sandy	  Poorly   suited:   Wetness   Too sandy	  Summer,   winter.	  Well suited   	    Well suited     	    Well suited   
24B: Munising	    Moderately   suited:   Wetness	  Moderately   suited:   Wetness	    Moderately   suited:   Wetness	  Summer,   fall,   winter.	  Well suited 	    Well suited   	    Well suited   
25B: Munising	  Moderately   suited:   Wetness	  Moderately   suited:   Wetness	  Moderately   suited:   Wetness	  Summer,   fall,   winter.	  Well suited 	    Well suited   	    Well suited   
Yalmer	  Moderately   suited:   Wetness   Sandiness	  Moderately   suited:   Wetness	  Moderately   suited:   Wetness	  Summer,   fall,   winter.	  Well suited   	  Well suited     	  Well suited     
25D: Munising	    Moderately   suited:   Wetness	  Moderately   suited:   Wetness   Slope	  Moderately   suited:   Wetness	  Summer,   fall,   winter.	  Well suited   	    Moderately   suited:   Slope	  Well suited   
Yalmer	  Moderately   suited:   Wetness   Sandiness	Moderately   suited:   Wetness   Slope	  Moderately   suited:   Wetness	  Summer,   fall,   winter. 	  Well suited   	  Moderately   suited:   Slope	  Well suited     

Table 8.--Equipment Limitations on Forestland--Continued

	-	and limiting limiting sease	features for on (s)	Preferred   operating   season(s)	-	and limiting	
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads
31D:	 	 	 	 		 	 
Trenary	  Well suited     	  Moderately   suited:   Slope	  Well suited     	  Year round   	Well suited	  Moderately   suited:   Slope	  Well suited   
33:							
Ensley	Poorly   suited:   Wetness 	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	Summer,   winter. 	Well suited	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength
35B:	 	 	 	 		 	 
Munising	Moderately   suited:   Wetness	Moderately   suited:   Wetness	Moderately   suited:   Wetness	Summer,   fall,   winter.	Well suited	  Well suited   	  Well suited   
Yalmer	Moderately   suited:   Wetness   Sandiness	   Moderately   suited:   Wetness	  Moderately   suited:   Wetness	Summer,   fall,   winter.	Well suited	  Well suited   	  Well suited     
Frohling	  Well suited 	  Well suited 	  Well suited 	  Year round 	  Well suited 	  Well suited 	  Well suited 
37B:	 	 					 
Grand Sable	well suited	well suited	well suited	Year round 	well suited	Well suited 	well suited
37E:		_					
Grand Sable	Moderately   suited:   Slope 	Poorly   suited:   Slope 	Moderately   suited:   Slope 	Year round     	Moderately   suited:   Slope	Poorly   suited:   Slope 	Moderately   suited:   Slope 
38B:	İ	İ	İ	İ	İ	İ	İ
Rhody	Poorly   suited:   Wetness   Restrictive   layer   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Wetness   Low   strength	Summer,   winter.       	Moderately   suited:   Restrictive   layer   Low   strength	Moderately   suited:   Low   strength 	Moderately   suited:   Low   strength
Towes	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly  suited:  Wetness  Low  strength	Poorly   suited:   Wetness   Low   strength	  Summer,   winter.   	  Moderately   suited:   Low   strength   Restrictive   layer	  Moderately   suited:   Low   strength	  Moderately   suited:   Low   strength
40B:	İ	İ	į	į	į		į
Waiska	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy	Moderately   suited:   Too sandy	Spring,   fall,   winter.	Well suited	Well suited   	Well suited   

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting		Preferred   operating   season(s)		and limiting d operating s	
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads
42: Davies	  Poorly   suited:   Wetness	  Poorly   suited:  Ponding  Wetness	  Poorly   suited:  Wetness	  Summer,   winter. 	    Well suited   	    Well suited     	    Well suited     
46: Jacobsville	  Poorly   suited:   Wetness   Restrictive   layer	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	  Summer,   winter.   	  Moderately   suited:   Restrictive   layer	  Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength
47C: Deerton	  Moderately   suited:   Restrictive   layer   Sandiness	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy 	  Spring,   fall,   winter.	  Moderately   suited:   Restrictive	  Moderately   suited:   Slope 	  Well suited     
Au Train	Poorly   suited:   Wetness   Restrictive   layer   Sandiness	   Poorly   suited:   Wetness   Too sandy	Poorly   suited:   Wetness   Too sandy	  Spring,   fall,   winter. 	Moderately   suited:   Restrictive   layer	  Well suited     	  Well suited       
47E: Deerton	  Moderately   suited:   Restrictive   layer   Slope   Sandiness	  Poorly   suited:   Slope   Too sandy	  Moderately   suited:   Too sandy   Slope	  Spring,   fall,   winter.   	  Moderately   suited:   Restrictive   layer   Slope	  Poorly   suited:   Slope 	  Moderately   suited:   Slope 
Au Train	   Poorly   suited:   Wetness   Restrictive   layer   Sandiness	   Poorly   suited:   Wetness   Slope   Too sandy	Poorly   suited:   Wetness   Too sandy	  Spring,   fall,   winter.   	Moderately   suited:   Restrictive   layer	  Moderately   suited:   Slope   	  Well suited         
48: Burt	  Poorly   suited:   Wetness   Restrictive   layer   Sandiness	  Poorly   suited:   Ponding   Wetness   Too sandy	Poorly   suited:   Wetness   Too sandy	  Summer,   winter.   	  Poorly   suited:   Restrictive   layer	  Well suited       	  Well suited         
49B: Cookson	  Moderately   suited:   Restrictive   layer	  Well suited     	  Well suited     	  Year round     	  Moderately   suited:   Restrictive   layer	  Well suited     	  Well suited     

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seaso		Preferred   operating   season(s)	,	and limiting d operating s	
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	   Logging   areas and   skid roads
51:	 	 	 		İ	 	! 
Nahma	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	Winter           	Poorly   suited:   Low   strength   Restrictive   layer	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength
Ruse	   Poorly   suited:   Wetness   Restrictive   layer   Low   strength	   Poorly   suited:   Ponding   Wetness   Low   strength	   Suited:   Wetness   Low   strength	  Summer,   winter. 	Poorly   suited:   Restrictive   layer   Low   strength	  Moderately   suited:   Low   strength 	   Moderately   suited:   Low   strength
52B:	 	 	 	 		 	 
Summerville	Poorly   suited:   Restrictive   layer   Low   strength	Moderately suited: Low strength	Moderately   suited:   Low   strength	Summer,   fall,   winter. 	Poorly suited: Restrictive layer Low strength	Moderately suited: Low strength	Moderately   suited:   Low   strength
57:	 	 	 	 		 	 
Carbondale	Poorly   suited:   Wetness   Low   strength	Poorly suited: Ponding Wetness Low strength	Poorly   suited:   Low   strength   Wetness	Winter           	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength
Lupton	Poorly   suited:   Wetness   Low   strength	Poorly suited: Ponding Wetness Low strength	Poorly   suited:   Low   strength   Wetness	Winter           	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength
Tawas	  Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	   Suited:   Low   strength   Wetness	  Winter         	Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength
58:	İ		İ		j	İ	
Dawson	Poorly   suited:   Wetness   Low   strength	Poorly suited: Ponding Wetness Low strength	Poorly   suited:   Low   strength   Wetness	Winter         	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	Poorly suited: Low strength

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting sease		Preferred   operating   season(s)		and limiting d operating so	
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads	     	   Haul roads   	  Log landings   	Logging areas and skid roads
58:	[	 	 			 	 
Greenwood	   Poorly   suited:   Wetness   Low   strength	   Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	  Winter         	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	   Suited:   Low   strength
Loxley	Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	Winter             	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength
59:	İ	į	İ	į	İ	İ	İ
Chippeny	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	Winter           	Poorly   suited:   Low   strength   Restrictive   layer	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength
Nahma	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	  Winter       	Poorly   suited:   Low   strength   Restrictive   layer	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength
60. Histosols and Aquents	 	       	     	       		     	       
61. Pits	   	   	   	   		   	   
62F. Udipsamments and Udorthents	 	     	     	     		     	 
64B: Kiva	    Well suited	    Well suited	    Well suited	    Year round	  Well suited	    Well suited	    Well suited
64D: Kiva	  Well suited   	  Moderately   suited:   Slope	    Well suited   	  Year round     	  Well suited   	  Moderately   suited:   Slope	    Well suited   
65D: Jeske	  Poorly   suited:   Wetness   Restrictive   layer	  Poorly   suited:   Wetness   Too sandy	  Poorly   suited:   Wetness   Too sandy	  Summer,   winter.   	  Moderately   suited:   Restrictive   layer	  Well suited       	  Well suited       

Table 8.--Equipment Limitations on Forestland--Continued

	-	and limiting limiting seaso		Preferred operating season(s)		and limiting d operating so	
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads
65D:	 		 	 		 	 
Gongeau	   Poorly   suited:   Wetness   Restrictive   layer	Poorly   suited:   Wetness   Low   strength   Too sandy	Poorly   suited:   Low   strength   Wetness   Too sandy	Summer,   winter.	Moderately   suited:   Restrictive   layer	   Suited:   Low   strength	   Suited:   Low   strength
Deerton	  Moderately   suited:   Restrictive   layer   Sandiness	  Moderately   suited:   Slope     Too sandy	Moderately   suited:   Too sandy	Spring,   fall,   winter.	Moderately   suited:   Restrictive   layer	  Moderately   suited:   Slope 	  Well suited     
65F:	 		 	 		 	 
Jeske	Poorly   suited:   Wetness   Restrictive   layer	Poorly   suited:   Wetness   Too sandy	Poorly   suited:   Wetness   Too sandy	Summer,   winter.	Moderately suited: Restrictive layer	Well suited         	Well suited         
Gongeau	   Suited:   Wetness   Restrictive   layer	Poorly   suited:   Wetness   Low   strength   Too sandy	Poorly suited: Low strength Wetness Too sandy	Summer,   winter. 	Moderately   suited:   Restrictive   layer	   suited:   Low   strength	   suited:   Low   strength
Deerton	   Moderately   suited:   Slope   Restrictive   layer   Sandiness	  Poorly   suited:   Slope   Too sandy	   Moderately   suited:   Slope   Too sandy	  Spring,   fall,   winter.	Moderately   suited:   Slope   Restrictive   layer	  Poorly   suited:   Slope 	  Moderately   suited:   Slope 
66D:							
Ruse	Poorly   suited:   Wetness   Restrictive   layer   Low   strength	Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Wetness   Low   strength	Summer, winter.	Poorly   suited:   Restrictive   layer   Low   strength	Moderately   suited:   Low   strength 	Moderately   suited:   Low   strength
Ensign	Poorly   suited:   Restrictive   layer   Low   strength	  Moderately   suited:   Low   strength	Moderately   suited:   Low   strength	  Summer,   winter.   	Poorly   suited:   Restrictive   layer   Low   strength	   Moderately   suited:   Low   strength	Moderately   suited:   Low   strength
Nykanen	Moderately   suited:   Restrictive   layer   Low   strength	Moderately   suited:   Slope   Low   strength	Moderately   suited:   Low   strength	  Summer,   fall,   winter. 	Moderately   suited:   Restrictive   layer   Low   strength	Moderately   suited:   Slope   Low   strength	Moderately   suited:   Low   strength

Table 8.--Equipment Limitations on Forestland--Continued

<b>M</b>		and limiting limiting sease		Preferred   operating   season(s)		and limiting d operating s	
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads
66F:	 	 	 	 		 	 
Ruse	Poorly   suited:   Wetness   Restrictive   layer   Low   strength	Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Wetness   Low   strength	Summer,   winter.       	Poorly   suited:   Restrictive   layer   Low   strength	Moderately   suited:   Low   strength	Moderately   suited:   Low   strength
Ensign	   Poorly   suited:   Restrictive   layer   Low   strength	  Moderately   suited:   Low   strength	   Moderately   suited:   Low   strength	  Summer,   winter.   	Poorly   suited:   Restrictive   layer   Low   strength	  Moderately   suited:   Low   strength	  Moderately   suited:   Low   strength
Nykanen	Poorly   suited:   Restrictive   layer   Slope	Poorly   suited:   Slope   Low   strength	Moderately   suited:   Slope   Low   strength	  Summer,   fall,   winter. 	Poorly   suited:   Restrictive   layer   Slope	Poorly   suited:  Slope   Low   strength	Moderately   suited:   Slope   Low   strength
68.	 		 				İ
Pits, quarry							
69B:	 	 	 	İ			i i
Escanaba	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
71A:	 	 	 	 		 	 
Evart	Poorly suited: Wetness Flooding Low strength	Poorly   suited:   Ponding   Wetness   Flooding	Poorly   suited:   Wetness   Low   strength	Summer,   winter. 	Moderately   suited:   Low   strength	Moderately   suited:   Low   strength	Moderately   suited:   Low   strength
Sturgeon	Poorly   suited:  Wetness  Flooding  Low   strength	Poorly   suited:  Wetness  Flooding  Low   strength	Poorly   suited:  Wetness  Low   strength	  Summer,   winter. 	Moderately   suited:   Low   strength	   Moderately   suited:   Low   strength	  Moderately   suited:   Low   strength
72E:	 	 	 	 		 	 
Deerton	Moderately suited: Restrictive layer Slope Sandiness	Poorly   suited:   Slope   Too sandy	Moderately   suited:   Too sandy   Slope	Spring,   fall,   winter. 	Moderately   suited:   Restrictive   layer   Slope	Poorly   suited:   Slope 	Moderately   suited:   Slope 
Tokiahok	  Moderately   suited:   Slope	  Poorly   suited:   Slope 	  Moderately   suited:   Slope	  Year round     	  Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope 

Table 8.--Equipment Limitations on Forestland--Continued

	-	and limiting limiting sease		Preferred   operating   season(s)	-	and limiting	
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads		Haul roads	  Log landings   	Logging areas and skid roads
72E:	 	 	l I	 		 	 
Trout Bay	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly   suited:   Wetness   Low   strength   Slope	   Suited:   Low   strength   Wetness	  Winter           	Poorly   suited:   Low   strength   Restrictive   layer   Slope	Poorly   suited:   Low   strength   Slope	Poorly   suited:   Low   strength
72F:							
Deerton	Poorly   suited:   Slope 	Poorly   suited:   Slope   Too sandy	Poorly   suited:   Slope   Too sandy	Spring,   fall,   winter. 	Poorly   suited:   Slope	Poorly   suited:   Slope 	Poorly   suited:   Slope 
Tokiahok	  Poorly   suited:   Slope 	  Poorly   suited:   Slope 	  Poorly   suited:   Slope	  Year round   	Poorly   suited:   Slope	  Poorly   suited:   Slope 	  Poorly   suited:   Slope
Trout Bay	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly   suited:   Wetness   Low   strength   Slope	Poorly   suited:   Low   strength   Wetness   Slope	Winter           	Poorly   suited:   Low   strength   Restrictive   layer   Slope	Poorly   suited:   Low   strength   Slope	Poorly   suited:   Low   strength   Slope
76C:	 	 	l I	 		 	 
Garlic	  Moderately   suited:   Sandiness 	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy 	  Spring,   fall,   winter. 	Well suited	  Moderately   suited:   Slope 	  Well suited     
Blue Lake	  Well suited   	  Moderately   suited:   Slope	  Well suited   	  Year round   	Well suited	Moderately   suited:   Slope	  Well suited   
Voelker	  Well suited   	  Moderately   suited:   Slope	  Well suited   	  Year round   	Well suited	  Moderately   suited:   Slope	  Well suited   
76E:	 	 	 	 		 	 
Garlic	   Moderately   suited:   Slope   Sandiness	Poorly   suited:   Slope   Too sandy	  Moderately   suited:   Too sandy   Slope	Spring,   fall,   winter. 	Moderately   suited:   Slope	Poorly   suited:   Slope 	  Moderately   suited:   Slope 
Blue Lake	  Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope 	  Year round   	Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope
Voelker	  Moderately   suited:   Slope 	  Poorly   suited:   Slope	  Moderately   suited:   Slope 	  Year round   	Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting sease		Preferred   operating   season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads	  Log landings   	Logging areas and skid roads	     	   Haul roads	  Log landings   	   Logging   areas and   skid roads	
		[		ļ		ļ		
76F:								
Garlic		Poorly	Poorly	Spring,	Poorly	Poorly	Poorly	
	suited:	suited:	suited:	fall,	suited:	suited:	suited:	
	Slope 	Slope   Too sandy	Slope   Too sandy	winter. 	Slope	Slope 	Slope 	
Blue Lake	  Poorlv	  Poorly	  Poorly	Year round	Poorly	Poorly	  Poorly	
	suited:	suited:	suited:		suited:	suited:	suited:	
	Slope	Slope	Slope		Slope	Slope	Slope	
Voelker	  Poorlv	  Poorly	  Poorly	Year round	Poorly	  Poorly	  Poorly	
	suited:	suited:	suited:		suited:	suited:	suited:	
	Slope	Slope	Slope		Slope	Slope	Slope	
77B:	 			 				
Garlic	-	Moderately	Moderately	Spring,	Well suited	Well suited	Well suited	
	suited:	suited:	suited:	fall,		!		
	Sandiness	Too sandy 	Too sandy	winter.			 	
Blue Lake	  Well suited	Well suited	Well suited	Year round	Well suited	Well suited	  Well suited	
Voelker	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited	
77D:								
Garlic	Moderately	Moderately	Moderately	Spring,	Well suited	Moderately	Well suited	
	suited:	suited:	suited:	fall,		suited:		
	Sandiness	Too sandy	Too sandy	winter. 		Slope 	 	
Blue Lake	  Well quited	Moderately	  Well suited	  Vear round	  Well suited	Moderately	  Well suited	
2140 24.10		suited:				suited:		
		Slope				Slope		
Voelker	  Well suited	Moderately	  Well suited	  Year round	  Well suited	  Moderatelv	  Well suited	
		suited:				suited:		
	  -	Slope		į	į	Slope	 	
77E:	 					 	 	
Garlic	Moderately	Poorly	Moderately	Spring,	Moderately	Poorly	Moderately	
	suited:	suited:	suited:	fall,	suited:	suited:	suited:	
	Slope   Sandiness	Slope   Too sandy	Too sandy Slope	winter. 	Slope	Slope 	Slope 	
Blue Lake	Moderately	  Poorly	  Moderately	Year round	  Moderately	  Poorly	  Moderately	
	suited:	suited:	suited:	i	suited:	suited:	suited:	
	Slope	Slope	Slope	į	Slope	Slope	Slope	
Voelker	  Moderately	  Poorly	Moderately	  Year round	  Moderately	  Poorly	  Moderately	
	suited:	suited:	suited:		suited:	suited:	suited:	
	Slope	Slope	Slope	 	Slope	Slope	Slope	
38:	! 						! 	
Cathro	Poorly	Poorly	Poorly	Winter	Poorly	Poorly	Poorly	
	suited:	suited:	suited:		suited:	suited:	suited:	
	Wetness	Ponding	Low	ļ.	Low	Low	Low	
	Low	Wetness	strength		strength	strength	strength	
	strength	Low strength	Wetness					

Table 8.--Equipment Limitations on Forestland--Continued

	-	and limiting limiting sease		Preferred   operating   season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads 	  Log landings   	   Logging   areas and   skid roads		   Haul roads	  Log landings   	   Logging   areas and   skid roads	
00								
88: Ensley	  Poorly   suited:   Wetness   	Poorly   suited:   Ponding   Wetness   Low   strength	  Poorly   suited:   Low   strength   Wetness	  Summer,   winter.     	Well suited	Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	
93:	İ		İ	İ	İ		İ	
Tawas	Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	Winter           	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	
Deford	  Poorly   suited:   Wetness 	Poorly   suited:   Ponding   Wetness	  Poorly   suited:   Wetness 	Summer,   winter. 	Well suited	Well suited 	  Well suited     	
95B:	İ		İ		İ		İ	
Liminga	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy	Moderately   suited:   Too sandy	Spring,   fall,   winter.	Well suited	Well suited   	Well suited   	
104C:								
Fence	Moderately   suited:   Wetness 	Moderately   suited:   Wetness   Low   strength   Slope	Moderately   suited:   Low   strength   Wetness	Summer,   fall,   winter. 	Well suited	Moderately   suited:   Low   strength   Slope	Moderately   suited:   Low   strength	
109D:								
Rousseau	Well suited     	Moderately   suited:   Slope	Well suited     	Year round   	Well suited   	Moderately   suited:   Slope	Well suited     	
Dawson	Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	  Winter         	Poorly suited: Low strength	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	
109F:	į		į	į	į		į	
Rousseau	Poorly   suited:   Slope	Poorly   suited:   Slope	Poorly   suited:   Slope	Year round   	Poorly   suited:   Slope	Poorly   suited:   Slope	Poorly   suited:   Slope	
Dawson	  Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	  Poorly   suited:   Low   strength   Wetness	  Winter         	Poorly   suited:  Low   strength	  Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seas		Preferred   operating   season(s)	:	and limiting d operating s	
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads
125B:							
Stutts	  Well suited 	  Well suited 	  Well suited 	  Year round 	  Well suited	  Well suited 	  Well suited 
Kalkaska	  Moderately   suited:   Sandiness	Well suited 	  Well suited   	  Year round   	Well suited	Well suited 	  Well suited   
125D:	 		 	 		1	 
Stutts	  Well suited   	Moderately   suited:   Slope	  Well suited   	  Year round   	Well suited	Moderately   suited:   Slope	  Well suited   
Kalkaska	  Moderately   suited:   Sandiness	Moderately   suited:   Slope	  Well suited   	  Year round   	Well suited	Moderately   suited:   Slope	  Well suited   
125E:	1		1	 			 
Stutts	Moderately   suited:   Slope	Poorly   suited:   Slope	Moderately   suited:   Slope	Year round   	Moderately   suited:   Slope	Poorly   suited:   Slope	Moderately   suited:   Slope
Kalkaska	  Moderately   suited:   Slope   Sandiness	Poorly   suited:   Slope	  Moderately   suited:   Slope 	  Year round     	Moderately   suited:   Slope	Poorly   suited:   Slope	  Moderately   suited:   Slope 
135B:	! 		 	İ			İ
Munising	Moderately   suited:   Wetness	Moderately   suited:   Wetness	Moderately   suited:   Wetness	Summer,   fall,   winter.	Well suited	Well suited	Well suited   
Ensley	  Poorly   suited:   Wetness	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	Summer,   winter. 	Well suited	Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength
145C:	 			I I			I I
Munising	Moderately   suited:   Wetness	Moderately   suited:   Wetness   Slope	Moderately   suited:   Wetness	Summer,   fall,   winter.	Well suited	Moderately   suited:   Slope	Well suited   
Yalmer	  Moderately   suited:   Wetness   Sandiness	  Moderately   suited:   Wetness   Slope	  Moderately   suited:   Wetness 	  Summer,   fall,   winter. 		  Moderately   suited:   Slope 	  Well suited       
146B:	İ		İ	İ	İ	i	İ
Munising	Moderately   suited:   Wetness	Moderately   suited:   Wetness	Moderately   suited:   Wetness	Summer,   fall,   winter.	Well suited	Well suited   	Well suited     
Skanee	  Poorly   suited:   Wetness	Poorly   suited:   Wetness	  Poorly   suited:   Wetness	Summer,   winter.	Well suited	Well suited 	  Well suited   

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seaso		Preferred   operating   season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	       	Haul roads	  Log landings   	Logging areas and skid roads	
147A:	l I	 	 	l I		 	l I	
Skanee	  Poorly   suited:   Wetness	Poorly   suited:   Wetness	  Poorly   suited:   Wetness	  Summer,   winter. 	Well suited	  Well suited   	  Well suited   	
Gay	  Poorly   suited:   Wetness   	Poorly   suited:   Ponding   Wetness   Low   strength	   Poorly   suited:   Low   strength   Wetness	  Summer,   winter.   	Well suited	   Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	
148B:					İ			
Shoepac	Moderately   suited:   Wetness 	Moderately   suited:   Wetness   Low   strength	Moderately   suited:   Low   strength   Wetness	Summer,   fall,   winter.	Well suited	Moderately   suited:   Low   strength	Moderately   suited:   Low   strength	
Ensley	Poorly   suited:   Wetness	Poorly suited: Ponding Wetness Low strength	Poorly   suited:   Low   strength   Wetness	Summer,   winter. 	Well suited	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	
155A:		 	 	 		 	 	
Zeba	Poorly   suited:   Wetness   Restrictive   layer	Poorly   suited:   Wetness 	Poorly   suited:   Wetness 	Summer,   winter. 	Moderately suited: Restrictive layer	             	Well suited 	
Jacobsville	  Poorly   suited:   Wetness   Restrictive   layer	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	Summer,   winter. 	Moderately   suited:   Restrictive   layer	Poorly   suited:   Low   strength	   Poorly   suited:   Low   strength	
157B:			! 		İ	! 		
Reade	Poorly   suited:   Wetness   Restrictive   layer   Low   strength	Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	Summer,   fall,   winter. 	Moderately   suited:   Restrictive   layer   Low   strength	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	
Nahma	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly   suited:   Ponding   Wetness   Low   strength	   Poorly   suited:   Low   strength   Wetness	  Winter       	Poorly   suited:   Low   strength   Restrictive   layer	  Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting sease		Preferred   operating   season(s)	Rating class and limiting features fo preferred operating season(s)			
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	   Logging   areas and   skid roads	
158C: Munising	  Moderately   suited:  Wetness	  Moderately   suited:  Wetness  Slope	  Moderately   suited:  Wetness	  Summer,   fall,   winter.	  Well suited	  Moderately   suited:   Slope	    Well suited   	
Abbaye	   Moderately   suited:   Restrictive   layer   Wetness	   Moderately   suited:   Wetness   Slope	   Moderately   suited:   Wetness 	  Year round       	Moderately   suited:   Restrictive   layer	   Moderately   suited:   Slope 	  Well suited       	
160B: Paquin	  Moderately   suited:   Wetness	  Moderately   suited:   Wetness	  Moderately   suited:   Wetness	  Year round   	  Well suited 	  Well suited   	  Well suited   	
Finch	Poorly   suited:   Wetness   Sandiness	  Poorly   suited:   Wetness   Too sandy	  Poorly   suited:   Wetness   Too sandy	  Summer,   winter.   	Well suited	  Well suited       	  Well suited       	
161B: Yellowdog	  Moderately   suited:   Restrictive   layer	  Well suited   	  Well suited     	  Year round   	Moderately   suited:   Restrictive   layer	  Well suited   	  Well suited   	
Buckroe	  Poorly   suited:   Restrictive   layer	  Well suited       	  Well suited       	  Year round       	Poorly   suited:   Restrictive   layer	  Well suited       	  Well suited       	
165B: Chocolay	Moderately   suited:   Restrictive   layer   Wetness	   Moderately   suited:   Wetness	   Moderately   suited:   Wetness	  Year round     	Moderately   suited:   Restrictive   layer	  Well suited     	  Well suited     	
Waiska	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	Spring,   fall,   winter.	  Well suited   	  Well suited     	  Well suited   	
166: Skandia	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly   suited:   Ponding   Wetness   Low   strength	  Poorly   suited:   Low   strength   Wetness	  Winter           	Poorly   suited:   Low   strength   Restrictive   layer	  Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seas		Preferred   operating   season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads	
167:	 	 	 			 	 	
Skandia	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	Winter           	Poorly   suited:   Low   strength   Restrictive   layer	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	
Jacobsville	  Poorly   suited:   Wetness   Restrictive   layer	Poorly   suited:   Ponding   Wetness   Low   strength	   Poorly   suited:   Low   strength   Wetness	  Summer,   winter.   	Moderately   suited:   Restrictive   layer	   Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	
170B:			İ					
Chocolay	Moderately   suited:   Restrictive   layer   Wetness	Moderately   suited:   Wetness 	Moderately   suited:   Wetness 	Year round         	Moderately   suited:   Restrictive   layer	Well suited         	Well suited         	
171B:			İ					
Paavola	Moderately   suited:   Wetness   Sandiness	Moderately   suited:   Wetness	Moderately   suited:   Wetness 	Summer,   fall,   winter. 	Well suited	Well suited       	Well suited     	
172D: Buckroe	  Poorly   suited:   Restrictive   layer   Rock   fragments   Slope	   Moderately   suited:   Slope   Rock   fragments	  Moderately   suited:   Rock   fragments	  Year round       	Poorly   suited:   Restrictive   layer   Rock   fragments   Slope	  Moderately   suited:   Slope   Rock   fragments	   Moderately   suited:   Rock   fragments	
Rock outcrop.	 	 	 			 	 	
172F:								
Buckroe	  Poorly   suited:   Slope   Rock   fragments	Poorly   suited:   Slope   Rock   fragments	Poorly   suited:   Slope   Rock   fragments	  Year round     	Poorly suited: Slope Rock fragments	  Poorly   suited:   Slope   Rock   fragments	Poorly   suited:  Slope  Rock   fragments	
Rock outcrop.		    -					    -	
176B: Croswell	  Moderately   suited:   Wetness   Sandiness	  Moderately   suited:   Wetness   Too sandy	  Moderately   suited:   Wetness   Too sandy	    Spring,   fall,   winter.	  Well suited 	    Well suited     	    Well suited     	
Kinross	  Poorly   suited:   Wetness 	  Poorly   suited:   Ponding   Wetness	  Poorly   suited:   Wetness 	  Summer,   winter. 	  Well suited   	  Well suited     	  Well suited     	

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seaso		Preferred   operating   season(s)		and limiting d operating s	
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	   Logging   areas and   skid roads
181E: Frohling	    Moderately	    Poorly	    Moderately	    Year round	    Moderately	    Poorly	    Moderately
	suited:   Slope	suited:   Slope	suited:   Slope		suited:   Slope	suited:   Slope	suited:   Slope
Tokiahok	  Moderately   suited:   Slope 	  Poorly   suited:   Slope 	  Moderately   suited:   Slope 	  Year round   	  Moderately   suited:   Slope	  Poorly   suited:   Slope 	  Moderately   suited:   Slope 
185B:	İ	İ	 	i		İ	İ
McMaster	Moderately   suited:   Wetness	Moderately   suited:   Wetness	Moderately   suited:   Wetness	Year round   	Well suited	Well suited   	  Well suited   
186B:	İ	İ		i		İ	İ
Chatham	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
186D: Chatham	  Well suited   	  Moderately   suited:   Slope	  Well suited   	  Year round   	  Well suited   	  Moderately   suited:   Slope	  Well suited   
187B:	 	 	 		1	 	 
Reade	Poorly   suited:   Wetness   Restrictive   layer   Low   strength	Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	Summer,   fall,   winter. 	Moderately   suited:   Restrictive   layer   Low   strength	Poorly   suited:   Low   strength	   Suited:   Low   strength
188B:		İ		İ			İ
Eben	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
188D: Eben	  Well suited     	  Moderately   suited:   Slope 	  Well suited   	  Year round   	  Well suited   	  Moderately   suited:   Slope	  Well suited     
188E:	İ		 	i		İ	İ
Eben	Moderately   suited:   Slope	Poorly   suited:   Slope	Moderately suited:	Year round     	Moderately   suited:   Slope	Poorly   suited:   Slope	Moderately   suited:   Slope
191B:	!	!		!		!	!
Ruse	Poorly   suited:   Wetness   Restrictive   layer   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Wetness   Low   strength	Summer,   winter. 	Poorly   suited:   Restrictive   layer   Low   strength	Moderately   suited:   Low   strength	Moderately   suited:   Low   strength
Ensign	  Poorly   suited:   Restrictive   layer	  Well suited     	  Well suited     	  Summer,   winter. 	Poorly   suited:   Restrictive   layer	  Well suited   	  Well suited     

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seaso		Preferred   operating   season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads   	  Log landings   	   Logging   areas and   skid roads	     	   Haul roads   	  Log landings   	Logging areas and skid roads	
197B: Shoepac	  Moderately   suited:  Wetness	   Moderately   suited:   Wetness   Low   strength	   Moderately   suited:   Low   strength   Wetness	  Summer,   fall,   winter.	  Well suited     	   Moderately   suited:   Low   strength	  Moderately   suited:   Low   strength	
Trenary	  Well suited 	  Well suited 	  Well suited 	  Year round 	  Well suited	  Well suited 	  Well suited 	
198B: Shoepac	  Moderately   suited:   Wetness	  Moderately   suited:   Wetness   Low   strength	Moderately   suited:   Low   strength   Wetness	  Summer,   fall,   winter.	  Well suited     	  Moderately   suited:   Low   strength	  Moderately   suited:   Low   strength	
Reade	Poorly   suited:   Wetness   Restrictive   layer   Low   strength	  Poorly   suited:   Wetness   Low   strength	   suited:   Low   strength   Wetness	  Summer,   fall,   winter. 	  Moderately   suited:   Restrictive   layer   Low   strength	  Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	
200A: Charlevoix	  Poorly   suited:   Wetness 	  Poorly   suited:   Wetness   Low   strength	  Poorly   suited:   Wetness   Low   strength	  Summer,   winter. 	  Well suited     	  Moderately   suited:   Low   strength	  Moderately   suited:   Low   strength	
Ensley	  Poorly   suited:   Wetness   	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly suited: Low strength Wetness	  Summer,   winter. 	  Well suited     	  Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	
202B: Sauxhead	  Poorly   suited:   Restrictive   layer	į	  Well suited   	Year round	  Poorly   suited:   Restrictive   layer	  Well suited     	  Well suited     	
206B: Traunik	    Well suited	    Well suited	    Well suited	    Year round	  Well suited	    Well suited	    Well suited	
206D: Traunik	    Well suited     	    Moderately   suited:   Slope 	    Well suited     	    Year round     	    Well suited     	    Moderately   suited:   Slope	    Well suited     	
211B: Munising	    Moderately   suited:   Wetness	  Moderately   suited:  Wetness	  Moderately   suited:  Wetness	  Summer,   fall,   winter.	  Well suited   	    Well suited     	    Well suited     	

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting Limiting seaso		Preferred   operating   season(s)		and limiting d operating s	
Map symbol and soil name	   Haul roads 	Log landings	Logging areas and skid roads	     	   Haul roads   	  Log landings   	   Logging   areas and   skid roads
211B: Abbaye	Moderately suited: Restrictive layer Wetness	Moderately suited: Wetness	   Moderately   suited:   Wetness 	  Year round   	  Moderately   suited:   Restrictive   layer	    Well suited     	    Well suited     
214B: Kalkaska	  Moderately   suited:   Sandiness	Moderately suited: Too sandy	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited	    Well suited   	    Well suited   
Blue Lake	  Well suited	  Well suited	  Well suited	  Year round	  Well suited	  Well suited	  Well suited
214D: Kalkaska	  Moderately   suited:   Sandiness	Moderately suited: Too sandy Slope	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited	  Moderately   suited:   Slope	  Well suited   
Blue Lake	  Well suited   	Moderately suited: Slope	  Well suited   	  Year round   	  Well suited 	  Moderately   suited:   Slope	  Well suited   
214E:			 	 		 	 
Kalkaska	Moderately suited: Slope Sandiness	Poorly   suited:   Slope   Too sandy	Moderately   suited:   Too sandy   Slope	Spring,   fall,   winter.	Moderately   suited:   Slope	Poorly   suited:   Slope	Moderately   suited:   Slope 
Blue Lake	  Moderately   suited:   Slope	Poorly suited: Slope	  Moderately   suited:   Slope	  Year round   	  Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope
221B:			 	İ			 
Jeske	Poorly suited: Wetness Restrictive layer	Poorly suited: Wetness Too sandy	Poorly   suited:   Wetness   Too sandy	Summer,   winter. 	Moderately   suited:   Restrictive   layer	Well suited         	Well suited         
Au Train	Poorly suited: Wetness Restrictive layer Sandiness	Poorly suited: Wetness Too sandy	Poorly   suited:  Wetness  Too sandy	  Spring,   fall,   winter. 	Moderately   suited:   Restrictive   layer	  Well suited     	  Well suited       
Gongeau	Poorly   suited:   Wetness   Restrictive   layer	Poorly suited: Ponding Wetness Low strength	Poorly   suited:   Low   strength   Wetness   Too sandy	  Summer,   winter.   	Moderately   suited:   Restrictive   layer	Poorly   suited:   Low   strength	   Poorly   suited:   Low   strength
225B: Cusino	    Well suited	    Well suited	    Well suited	    Year round	    Well suited	    Well suited	    Well suited

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seaso		Preferred   operating   season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads	     	   Haul roads 	  Log landings   	Logging areas and skid roads	
225D: Cusino	    Well suited     	    Moderately   suited:   Slope	    Well suited   	    Year round   	  Well suited	    Moderately   suited:   Slope	    Well suited     	
226B: Kalkaska	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited 	  Well suited   	  Well suited   	
Cusino	  Well suited	  Well suited 	  Well suited	  Year round	  Well suited	  Well suited	  Well suited	
226D: Kalkaska	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited	  Moderately   suited:   Slope 	  Well suited     	
Cusino	  Well suited   	  Moderately   suited:   Slope	  Well suited   	  Year round 	  Well suited 	  Moderately   suited:   Slope	  Well suited   	
226E:	 	 	 	 		 	 	
Kalkaska	Moderately   suited:   Slope   Sandiness	  Poorly   suited:   Slope   Too sandy	Moderately   suited:   Too sandy   Slope	  Spring,   fall,   winter.	Moderately suited:	  Poorly   suited:   Slope	  Moderately   suited:   Slope	
Cusino	  Moderately   suited:   Slope   Sandiness	  Poorly   suited:   Slope	  Moderately   suited:   Slope	  Year round   	Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope	
226F:	 	 	 	 		 	 	
Kalkaska	Poorly   suited:   Slope	Poorly   suited:   Slope   Too sandy	Poorly   suited:   Slope   Too sandy	Spring,   fall,   winter.	Poorly   suited:   Slope	Poorly   suited:   Slope	Poorly   suited:   Slope	
Cusino	  Poorly   suited:   Slope 	  Poorly   suited:   Slope	  Poorly   suited:   Slope	  Year round   	Poorly   suited:   Slope	  Poorly   suited:   Slope 	  Poorly   suited:   Slope	
227A:	İ	İ	 	İ		İ	İ	
Halfaday	Moderately   suited:   Wetness   Sandiness	Moderately   suited:   Wetness   Too sandy	Moderately   suited:   Wetness   Too sandy	Spring,   fall,   winter. 	Well suited	Well suited       	Well suited       	
232B: Shelldrake	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited 	  Well suited     	  Well suited     	
233B: Abbaye	  Moderately   suited:   Restrictive   layer   Wetness	  Moderately   suited:   Wetness	  Moderately   suited:   Wetness 	  Year round     	Moderately   suited:   Restrictive   layer	  Well suited       	  Well suited     	

Table 8.--Equipment Limitations on Forestland--Continued

	Rating class and limiting features for   most limiting season(s)			Preferred   operating   season(s)		and limiting d operating s	
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads
233B: Zeba	  Poorly   suited:  Wetness   Restrictive   layer	  Poorly   suited:   Wetness	  Poorly   suited:   Wetness	  Summer,  winter. 	  Moderately   suited:   Restrictive   layer	  Well suited     	  Well suited     
234A: Levasseur	  Poorly   suited:   Wetness   Restrictive   layer	  Poorly   suited:   Wetness	  Poorly   suited:   Wetness	  Summer,   winter. 	  Poorly   suited:   Restrictive   layer	  Well suited     	  Well suited     
Burt	Poorly   suited:   Wetness   Restrictive   layer   Sandiness	  Poorly   suited:   Ponding   Wetness   Too sandy	Poorly   suited:   Wetness   Too sandy	  Summer,   winter.   	Poorly   suited:   Restrictive   layer	  Well suited         	  Well suited         
235B: Sauxhead	  Poorly   suited:   Restrictive   layer	  Well suited   	  Well suited   	  Year round   	Poorly suited:  Restrictive	  Well suited   	  Well suited   
Burt	Poorly   suited:   Wetness   Restrictive   layer   Sandiness	  Poorly   suited:  Ponding  Wetness   Too sandy	   Poorly   suited:   Wetness   Too sandy	  Summer,   winter.   	Poorly   suited:   Restrictive   layer	  Well suited       	  Well suited       
236B: Waiska	  Poorly   suited:   Rock   fragments   Sandiness	  Poorly   suited:   Rock   fragments   Too sandy	   Poorly   suited:   Rock   fragments   Too sandy	  Spring,   fall,   winter. 	  Poorly   suited:   Rock   fragments	  Poorly   suited:   Rock   fragments	  Poorly   suited:   Rock   fragments
236D: Waiska	  Poorly   suited:   Rock   fragments   Sandiness	  Poorly   suited:   Rock   fragments   Too sandy   Slope	   Poorly   suited:   Rock   fragments   Too sandy	  Spring,   fall,   winter. 	  Poorly   suited:   Rock   fragments	  Poorly   suited:   Rock   fragments   Slope	  Poorly   suited:   Rock   fragments
237B: Chatham Davies	  Poorly	  Poorly	  Well suited    Poorly   suited:	  Summer,	İ	  Well suited    Well suited	İ
	İ	İ	  Poorly	į	İ	İ	

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seaso		Preferred   operating   season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads	     	   Haul roads   	  Log landings   	Logging areas and skid roads	
239B:								
Longrie	  Moderately   suited:   Restrictive   layer	  Well suited     	  Well suited     	  Year round     	Moderately   suited:   Restrictive   layer	  Well suited     	  Well suited     	
Shingleton	  Poorly   suited:   Restrictive   layer	  Well suited       	  Well suited     	  Year round     	Poorly   suited:   Restrictive   layer	  Well suited       	  Well suited     	
240F:								
Trout Bay	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly   suited:   Wetness   Low   strength   Slope	Poorly   suited:   Low   strength   Wetness	Winter           	Poorly   suited:   Low   strength   Restrictive   layer   Slope	Poorly   suited:   Low   strength   Slope	Poorly   suited:   Low   strength	
Gongeau	   Poorly   suited:   Wetness   Restrictive   layer	Poorly   suited:   Wetness   Low   strength   Too sandy	Poorly   suited:   Low   strength   Wetness   Too sandy	  Summer,   winter. 	Moderately   suited:   Restrictive   layer	   Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	
Shingleton	  Poorly   suited:   Slope	  Poorly   suited:   Slope	  Poorly   suited:   Slope	  Year round   	Poorly   suited:   Slope	  Poorly   suited:   Slope	  Poorly   suited:   Slope	
Rock outcrop.	 	 		 		 	 	
	į	İ		į	į	į	į	
241: Cathro	   Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	   Poorly   suited:   Low   strength   Wetness	  Winter         	Poorly   suited:   Low   strength	   Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	
Gay	Poorly   suited:   Wetness 	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Low   strength   Wetness	   summer,   winter.     	Well suited	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	
242B: Kalkaska	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited 	  Well suited     	  Well suited     	
242D: Kalkaska	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	Well suited	  Moderately   suited:   Slope	  Well suited   	

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seaso		Preferred   operating   season(s)	,	-	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	     	   Haul roads 	  Log landings   	   Logging   areas and   skid roads			
242F:	 					 	 			
Kalkaska	Poorly	Poorly	Poorly	Spring,	Poorly	Poorly	Poorly			
	suited:   Slope	suited:   Slope   Too sandy	suited: Slope Too sandy	fall,   winter. 	suited:   Slope	suited:   Slope	suited:   Slope 			
243:	 	l I	 			 	l I			
Markey	Poorly   suited:  Wetness   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly suited: Low strength Wetness	  Winter       	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength			
245B:	 	l I	 	 		 	l I			
Trout Bay	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly suited: Low strength Wetness	  Winter         	Poorly   suited:   Low   strength   Restrictive   layer	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength			
Lupton	Poorly   suited:   Wetness   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly suited: Low strength Wetness	Winter           	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength	Poorly   suited:   Low   strength			
Gongeau	  Poorly   suited:   Wetness   Restrictive   layer	  Poorly   suited:   Ponding   Wetness   Low   strength	Poorly suited: Low strength Wetness Too sandy	Summer,   winter. 	Moderately   suited:   Restrictive   layer	  Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength 			
246B:	j	j	İ	İ	j	j	j			
Garlic	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy 	Moderately   suited:   Too sandy	Spring,   fall,   winter. 	Well suited   	Well suited     	Well suited     			
246D:	İ	İ		i	j	İ	İ			
Garlic	Moderately   suited:   Sandiness 	Moderately   suited:   Too sandy   Slope	Moderately   suited:   Too sandy	Spring,   fall,   winter. 	Well suited	Moderately   suited:   Slope 	Well suited       			
246E:	İ	į		į	İ	İ	į			
Garlic	Moderately   suited:   Slope   Sandiness	Poorly   suited:   Slope   Too sandy	Moderately suited: Too sandy Slope	Spring,   fall,   winter. 	Moderately   suited:   Slope 	Poorly   suited:   Slope 	Moderately   suited:   Slope 			
248B:	į	į	İ	i	j	į	İ			
Escanaba	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited			
Greylock	  Woll quited	  Woll quited	  Woll quited	Vear round	  Well suited	  Woll quited	  Wall guited			

Table 8.--Equipment Limitations on Forestland--Continued

	Rating class most 1	and limiting Limiting sease		Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads   	Log landings	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads	
248D:	 		 			 		
Escanaba	Well suited   	Moderately suited: Slope	  Well suited   	Year round 	Well suited	Moderately   suited:   Slope	Well suited   	
Greylock	  Well suited   	Moderately suited: Slope	  Well suited   	  Year round   	  Well suited   	  Moderately   suited:   Slope	  Well suited   	
248E:	 		 	 		 	 	
Escanaba	Moderately   suited:   Slope	Poorly suited: Slope	Moderately   suited:   Slope	Year round   	Moderately suited:	Poorly   suited:   Slope	Moderately   suited:   Slope	
Greylock	  Moderately   suited:   Slope	Poorly suited: Slope	  Moderately   suited:   Slope	  Year round   	Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope	
249B:			 			 		
Sauxhead	Poorly   suited:   Restrictive   layer	Well suited	Well suited     	Year round	Poorly   suited:   Restrictive   layer	Well suited  -  -	Well suited     	
Skandia	Poorly   suited:   Wetness   Low   strength   Restrictive   layer	Poorly suited: Ponding Wetness Low strength	  Poorly   suited:   Low   strength   Wetness	  Winter         	Poorly   suited:   Low   strength   Restrictive   layer	Poorly   suited:   Low   strength	  Poorly   suited:   Low   strength	
250B:	 		 	 		 	 	
Chocolay	Moderately   suited:   Restrictive   layer   Wetness   Rock   fragments	Moderately suited: Rock fragments Wetness	Moderately   suited:   Rock   fragments   Wetness	Year round         	Moderately   suited:   Restrictive   layer   Rock   fragments	Moderately   suited:   Rock   fragments	   Moderately   suited:   Rock   fragments	
Jacobsville	Poorly   suited:   Wetness   Restrictive   layer   Rock   fragments	Poorly suited: Ponding Wetness Low strength	Poorly   suited:   Low   strength   Wetness   Rock   fragments	  Summer,   winter.   	Moderately   suited:   Restrictive   layer   Rock   fragments	   Poorly   suited:   Low   strength   Rock   fragments	Poorly   suited:   Low   strength   Rock   fragments	
251B: Greylock	  Well suited 	  Well suited 	  Well suited 	  Year round 	  Well suited 	  Well suited 	  Well suited 	
251D: Greylock	  Well suited   	Moderately suited: Slope	    Well suited   	  Year round 	  Well suited	    Moderately   suited:   Slope	    Well suited 	

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seas		Preferred   operating   season(s) 		and limiting d operating s	
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads		Haul roads	  Log landings   	Logging areas and skid roads
252A:	 		 				 
Finch	Poorly   suited:   Wetness   Sandiness	Poorly   suited:   Wetness   Too sandy	Poorly   suited:   Wetness   Too sandy	Summer,   winter. 	Well suited	Well suited	Well suited       
Kinross	  Poorly   suited:   Wetness 	Poorly   suited:   Ponding   Wetness	  Poorly   suited:   Wetness 	  Summer,   winter.   	Well suited	  Well suited       	  Well suited       
254C:	İ		İ	İ		İ	İ
Kalkaska	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy   Slope	Moderately   suited:   Too sandy 	Spring,   fall,   winter.	Well suited	Moderately   suited:   Slope 	Well suited     
Blue Lake	  Well suited     	  Moderately   suited:   Slope	  Well suited   	  Year round   	  Well suited   	  Moderately   suited:   Slope	  Well suited     
254E:	İ			i			
Kalkaska	Moderately   suited:   Slope   Sandiness	Poorly   suited:   Slope   Too sandy	Moderately   suited:   Too sandy   Slope	Spring,   fall,   winter. 	Moderately   suited:   Slope	Poorly   suited:   Slope 	Moderately   suited:   Slope 
Blue Lake	  Moderately   suited:   Slope 	Poorly   suited:   Slope	  Moderately   suited:   Slope 	  Year round   	Moderately   suited:   Slope	Poorly   suited:   Slope	  Moderately   suited:   Slope
254F:	İ		İ	İ		İ	İ
Kalkaska	Poorly   suited:   Slope 	Poorly   suited:   Slope   Too sandy	Poorly   suited:   Slope   Too sandy	Spring,   fall,   winter. 	Poorly suited:	Poorly   suited:   Slope	Poorly   suited:   Slope 
Blue Lake	  Poorly   suited:   Slope 	Poorly   suited:   Slope	  Poorly   suited:   Slope 	  Year round     	Poorly   suited:   Slope	Poorly   suited:   Slope	  Poorly   suited:   Slope 
255D: Wallace	  Moderately   suited:   Sandiness 	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy 	Year round	  Well suited   	  Moderately   suited:   Slope 	  Well suited     
256B:	! 						
Whitewash	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy	Moderately   suited:   Too sandy	Spring,   fall,   winter.	Well suited	Well suited   	Well suited 
266A:	ļ	!	ļ	ļ.	!	ļ	ļ
Spot	Poorly   suited:   Wetness   Sandiness	Poorly   suited:   Ponding   Wetness   Too sandy	Poorly   suited:   Wetness   Too sandy	Summer,   winter. 	Well suited	Well suited     	Well suited       

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seaso		Preferred   operating   season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads	
266A: Finch	  Poorly   suited:   Wetness   Sandiness	  Poorly   suited:  Wetness   Too sandy	  Poorly   suited:   Wetness   Too sandy	  Summer,   winter. 	  Well suited	    Well suited     	    Well suited     	
267A: Finch	  Poorly   suited:   Wetness   Sandiness	  Poorly   suited:   Wetness   Too sandy	  Poorly   suited:   Wetness   Too sandy	  Summer,   winter. 	  Well suited	  Well suited     	  Well suited   	
268C: Munising	  Moderately   suited:   Wetness	  Moderately   suited:   Wetness   Slope	  Moderately   suited:   Wetness	  Summer,   fall,   winter.	  Well suited 	  Moderately   suited:   Slope 	  Well suited   	
Frohling	  Well suited   	  Moderately   suited:   Slope	  Well suited   	  Year round 	  Well suited 	  Moderately   suited:   Slope	  Well suited   	
Cookson	  Moderately   suited:   Restrictive   layer	  Moderately   suited:   Slope 	  Well suited     	  Year round     	Moderately   suited:   Restrictive   layer	  Moderately   suited:   Slope 	  Well suited     	
269E: Frohling	  Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope	    Year round   	Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope	
Garlic	  Moderately   suited:   Slope   Sandiness	  Poorly   suited:   Slope   Too sandy	  Moderately   suited:   Too sandy   Slope	  Spring,   fall,   winter.	Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope	
Cookson	  Moderately   suited:   Restrictive   layer   Slope	  Poorly   suited:   Slope 	  Moderately   suited:   Slope   	  Year round       	Moderately   suited:   Restrictive   layer   Slope	  Poorly   suited:   Slope 	  Moderately   suited:   Slope 	
272C: Munising	  Moderately   suited:   Wetness	  Moderately   suited:   Wetness   Slope	  Moderately   suited:   Wetness	  Summer,   fall,   winter.	  Well suited	  Moderately   suited:   Slope	  Well suited   	
Yalmer	  Moderately   suited:   Wetness   Sandiness	  Moderately   suited:   Wetness   Slope	  Moderately   suited:   Wetness 	  Summer,   fall,   winter.	  Well suited   	  Moderately   suited:   Slope 	  Well suited     	
Frohling	  Well suited   	  Moderately   suited:   Slope	  Well suited   	  Year round   	  Well suited 	  Moderately   suited:   Slope	  Well suited   	

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seaso		Preferred   operating   season(s)		and limiting d operating se	
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	     	   Haul roads 	  Log landings   	Logging areas and skid roads
275B: Munising	    Moderately	    Moderately	    Moderately	    Summer,	    Well suited	    Well suited	    Well suited
	suited:	suited:	suited:   Wetness	fall,   winter.			
Cookson	  Moderately   suited:   Restrictive   layer	  Well suited       	  Well suited     	  Year round       	Moderately   suited:   Restrictive   layer	  Well suited       	  Well suited     
281E:	ĺ	ĺ		ĺ	İ	İ	ĺ
Mongo	Moderately   suited:   Slope 	Poorly   suited:   Slope   Low   strength	Moderately suited: Slope Low strength	Summer,   fall,   winter. 	Moderately   suited:   Slope 	Poorly   suited:   Slope   Low   strength	Moderately   suited:   Slope   Low   strength
282B:				 		 	 
Furlong	Moderately   suited:   Restrictive   layer   Sandiness	Moderately   suited:   Too sandy 	Moderately suited: Too sandy	Spring,   fall,   winter. 	Moderately   suited:   Restrictive   layer	Well suited       	  Well suited       
Shingleton	  Poorly   suited:   Restrictive   layer	  Well suited       	  Well suited     	  Year round       	Poorly   suited:   Restrictive   layer	  Well suited       	  Well suited       
282D:				İ			! 
Furlong	Moderately   suited:   Restrictive   layer   Sandiness	Moderately   suited:   Too sandy   Slope	Moderately suited: Too sandy	Spring,   fall,   winter.	Moderately   suited:   Restrictive   layer	Moderately   suited:   Slope 	 
Shingleton	  Poorly   suited:   Restrictive   layer	  Moderately   suited:   Slope   	  Well suited     	  Year round       	  Poorly   suited:   Restrictive   layer	  Moderately   suited:   Slope 	  Well suited       
284B:				İ			
SteubenBlue Lake	İ	İ	İ	İ	Well suited    Well suited	İ	İ
Bide Hake	Well Suited	Well Sulted	well suiced	Teal Tound	well suited	Well Sulced	well suited
Kalkaska	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy	Moderately suited: Too sandy	Spring,   fall,   winter.	Well suited	Well suited   	  Well suited   
284D:							
Steuben	Well suited     	Moderately   suited:   Slope 	Well suited   	Year round     	Well suited   	Moderately   suited:   Slope	Well suited     
Blue Lake	Well suited   	Moderately   suited:   Slope	Well suited  -	Year round   	Well suited	Moderately   suited:   Slope	  Well suited   

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting		Preferred   operating   season(s)		and limiting d operating s	
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads
284D:	 	 	 	 		 	 
Kalkaska	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy   Slope	   Moderately   suited:   Too sandy 	Spring,   fall,   winter.	Well suited	Moderately   suited:   Slope 	  Well suited     
284E:	 	 	 	 		 	 
Steuben	Moderately   suited:   Slope	Poorly   suited:   Slope	Moderately   suited:   Slope	Year round   	Moderately suited:	Poorly   suited:   Slope	Moderately   suited:   Slope
Blue Lake	  Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope	  Year round   	Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope
Kalkaska	  Moderately   suited:   Slope   Sandiness	  Poorly   suited:   Slope   Too sandy	  Moderately   suited:   Too sandy   Slope	  Spring,   fall,   winter. 	Moderately   suited:   Slope	  Poorly   suited:   Slope   	  Moderately   suited:   Slope   
285B:	İ	İ	İ	İ	İ	İ	İ
Halfaday	Moderately   suited:   Wetness   Sandiness	Moderately   suited:   Wetness   Too sandy	Moderately   suited:   Wetness   Too sandy	Spring,   fall,   winter. 	Well suited	Well suited     	Well suited     
Kinross	  Poorly   suited:   Wetness 	Poorly   suited:   Ponding   Wetness	  Poorly   suited:   Wetness 	Summer,   winter. 	Well suited	  Well suited       	  Well suited     
286B:			İ			İ	
Greylock	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
Cookson	  Moderately   suited:   Restrictive   layer	  Well suited       	  Well suited       	  Year round       	Moderately   suited:   Restrictive   layer	į	  Well suited       
287B:	İ	İ	İ	İ	İ	İ	İ
McMaster	Moderately   suited:   Wetness	Moderately   suited:   Wetness	Moderately   suited:   Wetness	Year round   	Well suited	Well suited   	Well suited   
Davies	  Poorly   suited:   Wetness   	  Poorly   suited:   Ponding   Wetness	  Poorly   suited:   Wetness 	  Summer,   winter.   	  Well suited     	  Well suited       	  Well suited       
290A: Namur	  Poorly   suited:   Restrictive   layer	  Moderately   suited:   Low   strength	  Moderately   suited:   Low   strength	  Year round   	Poorly   suited:   Restrictive   layer	  Moderately   suited:   Low   strength	  Moderately   suited:   Low   strength

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting sease		Preferred   operating   season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads   	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads	
290A:	 	 	 			 	 	
Ruse	Poorly   suited:   Wetness   Restrictive   layer   Low   strength	Poorly   suited:   Ponding   Wetness   Low   strength	Poorly   suited:   Wetness   Low   strength	Summer,   winter.         	Poorly   suited:   Restrictive   layer   Low   strength	Moderately   suited:   Low   strength	Moderately   suited:   Low   strength	
292B:				i				
Mashek	Moderately   suited:   Wetness	Moderately suited: Wetness	Moderately   suited:   Wetness	Year round   	Well suited     	Well suited     	Well suited     	
296D:								
Islandlake	Well suited     	Moderately   suited:   Slope 	Well suited     	Year round   	Well suited	Moderately   suited:   Slope 	Well suited     	
McMillan	  Well suited   	Moderately   suited:   Slope	  Well suited   	Year round   	Well suited 	Moderately   suited:   Slope	  Well suited   	
296E:			İ	İ			İ	
Islandlake	Moderately   suited:   Slope	Poorly   suited:   Slope	Moderately   suited:   Slope	Year round   	Moderately   suited:   Slope	Poorly   suited:   Slope	Moderately   suited:   Slope	
McMillan	Moderately   suited:   Slope   Sandiness	Poorly   suited:   Slope 	Moderately   suited:   Slope 	Year round     	Moderately suited: Slope	Poorly   suited:   Slope 	Moderately   suited:   Slope 	
297B:	İ		İ	i	İ	İ	İ	
Rubicon	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy 	Moderately   suited:   Too sandy	Spring,   fall,   winter. 	Well suited     	Well suited     	Well suited     	
297D:	İ	İ	İ	İ	İ	İ	İ	
Rubicon	Moderately   suited:   Sandiness 	Moderately   suited:   Too sandy   Slope	Moderately   suited:   Too sandy 	Spring,   fall,   winter. 	Well suited	Moderately   suited:   Slope 	Well suited       	
298B:	İ	İ	į	i	İ	İ	į	
Wurtsmith	Moderately suited: Wetness Sandiness	Moderately   suited:   Wetness   Too sandy	Moderately   suited:   Wetness   Too sandy	Spring,   fall,   winter. 	Well suited	Well suited  -  -  -	Well suited       	
Deford	  Poorly   suited:   Wetness	  Poorly   suited:   Ponding   Wetness	  Poorly   suited:   Wetness	Summer,   winter. 	Well suited 	  Well suited     	  Well suited     	

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting Limiting seaso	features for	Preferred   operating   season(s)		and limiting d operating s	
Map symbol and soil name	   Haul roads   	Log landings	   Logging   areas and   skid roads	     	Haul roads	  Log landings   	   Logging   areas and   skid roads
299F: Shelldrake	  Moderately   suited:   Slope	Poorly suited: Slope Too sandy	  Moderately   suited:   Slope   Too sandy	    Spring,   fall,   winter.	  Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope 
300F: Shelldrake	  Moderately   suited:   Slope	Poorly suited: Slope Too sandy	  Moderately   suited:   Slope   Too sandy	  Spring,   fall,   winter.	Moderately   suited:  Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope 
Dune land.	   				į		
301F: Cookson	  Moderately   suited:   Slope	Poorly suited: Slope	  Moderately   suited:   Slope	  Year round   	  Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope
Nykanen	  Poorly   suited:   Restrictive   layer   Slope	Poorly suited: Slope Low strength	  Moderately   suited:   Slope   Low   strength	  Summer,   fall,   winter.	Poorly   suited:   Restrictive   layer   Slope	  Poorly   suited:   Slope   Low   strength	  Moderately   suited:   Slope   Low   strength
302B: Dillingham	    Well suited	Well suited	    Well suited	    Year round	    Well suited	    Well suited	    Well suited
Kalkaska	  Moderately   suited:   Sandiness	Moderately suited: Too sandy	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited 	  Well suited   	  Well suited   
302D: Dillingham	    Well suited   	Moderately suited: Slope	    Well suited   	    Year round   	  Well suited	    Moderately   suited:   Slope	    Well suited   
Kalkaska	  Moderately   suited:   Sandiness	Moderately suited: Too sandy Slope	  Moderately   suited:   Too sandy 	  Spring,   fall,   winter.	Well suited	  Moderately   suited:   Slope 	  Well suited     
302E: Dillingham	  Moderately   suited:   Slope   Sandiness	Poorly suited: Slope	  Moderately   suited:   Slope 	  Year round   	Moderately   suited:   Slope	  Poorly   suited:   Slope 	  Moderately   suited:   Slope 
Kalkaska	  Moderately   suited:   Slope   Sandiness	Poorly suited: Slope Too sandy	  Moderately   suited:   Too sandy   Slope	  Spring,   fall,   winter.	Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope
302F: Dillingham	  Poorly   suited:   Slope	Poorly suited: Slope	    Poorly   suited:   Slope	    Year round   	Poorly   suited:   Slope	    Poorly   suited:   Slope	    Poorly   suited:   Slope

Table 8.--Equipment Limitations on Forestland--Continued

		and limiting limiting seaso		Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads		Haul roads	  Log landings   	Logging areas and skid roads	
302F: Kalkaska	  Poorly   suited:   Slope	  Poorly   suited:   Slope   Too sandy	  Poorly   suited:   Slope   Too sandy	    Spring,   fall,   winter. 	Poorly   suited:   Slope	  Poorly   suited:   Slope	  Poorly   suited:  Slope	
303B:	 		 	İ		 	 	
Kiva	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited	
Trenary	  Well suited 	  Well suited 	  Well suited 	  Year round 	  Well suited 	  Well suited 	  Well suited 	
303D:	İ	j	İ	İ	İ	İ	İ	
Kiva	Well suited   	Moderately   suited:   Slope	Well suited   	Year round   	Well suited	Moderately   suited:   Slope	Well suited   	
Trenary	  Well suited   	  Moderately   suited:   Slope	  Well suited     	  Year round   	Well suited	  Moderately   suited:   Slope	  Well suited   	
303E:	 	İ		İ		 	İ	
Kiva	Moderately   suited:   Slope   Sandiness	Poorly   suited:   Slope 	Moderately   suited:   Slope 	Year round     	Moderately   suited:   Slope	Poorly   suited:   Slope	Moderately   suited:   Slope 	
Trenary	  Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope	  Year round   	Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope	
305B:	 	 	 	 		 	 	
Wurtsmith	Moderately suited: Wetness Sandiness	Moderately   suited:   Wetness   Too sandy	Moderately   suited:   Wetness   Too sandy	Spring,   fall,   winter.	Well suited	Well suited	Well suited     	
Meehan	  Poorly   suited:   Wetness   Sandiness	  Poorly   suited:   Wetness   Too sandy	  Poorly   suited:   Wetness   Too sandy	  Summer,   winter.   	Well suited	  Well suited       	  Well suited       	
306C:	ĺ	į	İ	į	į	ĺ	İ	
Deerton	Moderately   suited:   Restrictive   layer   Sandiness	Moderately   suited:   Too sandy   Slope 	Moderately   suited:   Too sandy   	Spring,   fall,   winter.   	Moderately   suited:   Restrictive   layer	suited:	Well suited         	
Tokiahok	  Well suited   	  Moderately   suited:   Slope	  Well suited     	  Year round   	Well suited	  Moderately   suited:   Slope	  Well suited   	
Jeske	   Suited:   Wetness   Restrictive   layer	  Poorly   suited:   Wetness   Too sandy	  Poorly   suited:   Wetness   Too sandy	  Summer,   winter.   	Moderately   suited:   Restrictive   layer	  Well suited     	  Well suited     	

Table 8.--Equipment Limitations on Forestland--Continued

	Rating class and limiting features for   most limiting season(s)		Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)			
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	     	   Haul roads 	  Log landings   	Logging areas and skid roads
2055							
307B: Rubicon	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited   	  Well suited     	  Well suited   
307D:	 		 			 	 
Rubicon	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy   Slope	Moderately   suited:   Too sandy 	Spring,   fall,   winter.	Well suited	Moderately   suited:   Slope 	Well suited       
308B:	 		 			 	 
Rubicon	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy	Moderately   suited:   Too sandy	Spring,   fall,   winter.	Well suited	Well suited   	Well suited   
Sultz	  Moderately   suited:   Sandiness	Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	Spring,   fall,   winter.	Well suited	  Well suited   	  Well suited   
308D:	 		 	 		 	 
Rubicon	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy   Slope	Moderately suited: Too sandy	Spring,   fall,   winter.	Well suited	Moderately   suited:   Slope	  Well suited   
Sultz	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy 	  Spring,   fall,   winter.	  Well suited   	  Moderately   suited:   Slope	  Well suited     
309B:			 				
Rubicon	Moderately   suited:   Sandiness	Moderately   suited:   Too sandy	Moderately   suited:   Too sandy	Spring,   fall,   winter.	Well suited   	Well suited     	Well suited   
309D:							
Rubicon	Moderately   suited:   Sandiness 	Moderately   suited:   Too sandy   Slope	Moderately   suited:   Too sandy 	Spring,   fall,   winter. 	Well suited	Moderately   suited:   Slope 	Well suited       
310B: Kalkaska	Modematel	Moderately	    Moderately	Comina	  Wall guited	    Well suited	    Wall quited
Kalkaska	suited:   Sandiness	suited:	suited:   Too sandy	Spring,   fall,   winter.	well suited	  -  -	well suited   
310D:			 				 
Kalkaska	Moderately   suited:   Sandiness 	Moderately   suited:   Too sandy   Slope	Moderately   suited:   Too sandy 	Spring,   fall,   winter. 	Well suited	Moderately   suited:   Slope 	Well suited     
310E: Kalkaska	  Moderately   suited:   Slope   Sandiness	  Poorly   suited:   Slope   Too sandy	  Moderately   suited:   Slope   Too sandy	  Spring,   fall,   winter.	  Moderately   suited:   Slope	  Poorly   suited:   Slope 	  Moderately   suited:   Slope

Table 8.--Equipment Limitations on Forestland--Continued

	Rating class and limiting features for   most limiting season(s)			Preferred   operating   season(s)	Rating class and limiting features fo   preferred operating season(s)		
Map symbol and soil name	   Haul roads 	  Log landings   	Logging areas and skid roads	 	   Haul roads	  Log landings   	   Logging   areas and   skid roads
311B: Kalkaska	    Moderately   suited:   Sandiness	    Moderately   suited:   Too sandy 	    Moderately   suited:   Too sandy	    Spring,   fall,   winter.	  Well suited 	    Well suited   	    Well suited     
311D: Kalkaska	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited   	  Moderately   suited:   Slope	  Well suited     
312B: Islandlake	    Well suited 	    Well suited 	    Well suited 	    Year round 	  Well suited	    Well suited 	    Well suited 
312D: Islandlake	    Well suited   	  Moderately   suited:   Slope	    Well suited   	    Year round   	  Well suited 	  Moderately   suited:   Slope	    Well suited   
313B: Kalkaska	    Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	    Spring,   fall,   winter.	  Well suited   	    Well suited   	    Well suited     
314B: Blue Lake	  Well suited	  Well suited	    Well suited	  Year round	  Well suited	  Well suited	    Well suited
315B: Blue Lake	    Well suited	  Well suited	    Well suited	    Year round	  Well suited	    Well suited	    Well suited 
316B: Blue Lake	  Well suited	  Well suited	    Well suited	  Year round	  Well suited	  Well suited	    Well suited 
316D: Blue Lake	  Well suited   	  Moderately   suited:   Slope	    Well suited   	  Year round   	  Well suited 	  Moderately   suited:   Slope	    Well suited     
317B: Kalkaska	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited   	  Well suited   	    Well suited     
317D: Kalkaska	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited 	  Moderately   suited:   Slope	  Well suited   
318B: Islandlake	    Well suited 	    Well suited 	    Well suited 	    Year round 	    Well suited	    Well suited 	    Well suited 
318D: Islandlake	  Well suited   	  Moderately   suited:   Slope	  Well suited   	  Year round 	  Well suited 	  Moderately   suited:   Slope	  Well suited   

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for   most limiting season(s)		Preferred   operating   season(s)	Rating class and limiting features for preferred operating season(s)			
	Haul roads	  Log landings   	Logging areas and skid roads	     	Haul roads	  Log landings   	Logging areas and skid roads
319B: Islandlake	    Well suited	    Well suited	    Well suited	    Year round	  Well suited	    Well suited	    Well suited
319D: Islandlake	  Well suited 	  Moderately   suited:   Slope	    Well suited     	    Year round   	  Well suited	    Moderately   suited:   Slope	    Well suited     
319E: Islandlake	Moderately suited: Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope	  Year round 	  Moderately   suited:   Slope	  Poorly   suited:   Slope	  Moderately   suited:   Slope
319F: Islandlake	Poorly suited: Slope	  Poorly   suited:   Slope	  Poorly   suited:   Slope	    Year round   	Poorly   suited:   Slope	  Poorly   suited:   Slope	  Poorly   suited:   Slope
320B: Kalkaska	Moderately suited: Sandiness	  Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited 	    Well suited   	    Well suited   
321B: Kalkaska	  Moderately   suited:   Sandiness	  Moderately   suited:   Too sandy	    Moderately   suited:   Too sandy	  Spring,   fall,   winter.	  Well suited 	    Well suited   	    Well suited   
Deerton	Moderately suited: Restrictive layer Sandiness	Moderately   suited:   Too sandy	  Moderately   suited:   Too sandy	  Spring,   fall,   winter.	Moderately   suited:   Restrictive   layer	  Well suited     	  Well suited     
321D: Kalkaska	Moderately suited: Sandiness	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy	    Spring,   fall,   winter.	  Well suited 	  Moderately   suited:   Slope	    Well suited     
Deerton	Moderately   suited:   Restrictive   layer   Sandiness	  Moderately   suited:   Too sandy   Slope	  Moderately   suited:   Too sandy   	  Spring,   fall,   winter. 	Moderately   suited:   Restrictive   layer	  Moderately   suited:   Slope   	  Well suited       

Table 9.--Forestland Understory Plant Communities

(Absence of an entry indicates that information was not available)

Map symbol and soil name	Habitat type   (primary/secondary)	Characteristic vegetation
.0. Beaches	 	 
llC: Deer Park	  PVC/QAE (Pinus-Vaccinium-   Carex/Quercus-Acer-Epigaea)       	  Canada mayflower  blueberry  brackenfern  hairgrass  lowbush blueberry  sedge  trailing arbutus  wintergreen
.1E: Deer Park	  PVC/QAE (Pinus-Vaccinium-   Carex/Quercus-Acer-Epigaea)       	Canada mayflower  blueberry  brackenfern  hairgrass  lowbush blueberry  sedge  trailing arbutus  wintergreen
1F: Deer Park	  PVC/QAE (Pinus-Vaccinium-   Carex/Quercus-Acer-Epigaea)       	
.2B: Rubicon	  AQV/QAE (Acer-Quercus-   Vaccinium/Quercus-Acer-Epigaea)         	beaked hazelnut   cowwheat   eastern teaberry   lowbush blueberry   rare clubmoss   sedge   sweetfern   brackenfern
2D: Rubicon	  AQV/QAE (Acer-Quercus-   Vaccinium/Quercus-Acer-Epigaea)       	beaked hazelnut   cowwheat   eastern teaberry   lowbush blueberry   rare clubmoss   sedge   sweetfern   brackenfern
l2E: Rubicon	  AQV/QAE (Acer-Quercus-   Vaccinium/Quercus-Acer-Epigaea)         	beaked hazelnut   cowwheat   eastern teaberry   lowbush blueberry   rare clubmoss   sedge   sweetfern   brackenfern

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type   (primary/secondary)	   Characteristic vegetation 
13B: Kalkaska	   ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)   	American beech American starflower  elderberry  hairy Solomon's seal  shining clubmoss  spinulose woodfern  sugar maple
13D: Kalkaska	    ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)   	wild lily-of-the-valley  American beech American starflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple wild lily-of-the-valley
13E: Kalkaska	  -   ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)  -  -  -  -	American beech   American starflower   elderberry   hairy Solomon's seal   shining clubmoss   spinulose woodfern   sugar maple   wild lily-of-the-valley
15A: Croswell	  AQV (Acer-Quercus-Vaccinium)             	beaked hazelnut   brackenfern   cowwheat   eastern teaberry   pin cherry   serviceberry   starflower   sweetfern   trailing arbutus   twinflower   vaccinium
16A: Paquin	Dryopteris, Dryopteris	American starflower    Canada beadruby   Sambucus racemosa var. racemosa     bunchberry dogwood     coptis     partridgeberry     red maple     shining clubmoss     spinulose woodfern     wild sarsaparilla
17A: Au Gres	  TMC-V (Tsuga-Maianthemum-   Coptis, Vaccinium Phase)    -  -  -	American starflower    Canada mayflower     bunchberry dogwood     coptis     eastern teaberry     lowbush blueberry     sedge     brackenfern

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
.8:		 
Kinross	TTS (Tsuga-Thuja-Sphagnum)	black spruce  bunchberry dogwood  coptis  leatherleaf
		sedge  speckled alder  vaccinium
L9:		
Deford	FMC/TMC (Fraxinus-Mentha-   Carex/Tsuga-Maianthemum-Coptis)    -  -  -	blue flag iris     bunchberry dogwood     dewberry     mint     ostrich fern     sedge     speckled alder     sphagnum moss
	 	spinulose woodfern  willow
21A:		
24B:	TMC-D (Tsuga-Maianthemum-   Coptis, Dryopteris Phase)	Canada mayflower blueberry brackenfern bunchberry dogwood goldthread sphagnum moss spinulose shield fern starflower wood sorrel yellow beadlily  Canada mayflower false Solomon's seal honeysuckle partridgeberry
	 	red elderberry  sedge  shining clubmoss  spinulose woodfern  starflower  sugar maple  twistedstalk  violet
25B: Munising	ATD (Acer-Tsuga-Dryopteris)	Canada mayflower   false Solomon's seal   honeysuckle   partridgeberry   red elderberry   sedge   shining clubmoss   spinulose woodfern   starflower   sugar maple   twistedstalk   violet

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
25B: Valmer	    ATD (Acer-Tsuga-Dryopteris)	American beech
		Canada mayflower   shining clubmoss   spinulose shield fern   starflower   sugar maple
		twistedstalk  violet
SD: Munising	  ATD (Acer-Tsuga-Dryopteris) 	  Canada mayflower  bloodroot
	 	false Solomon's seal  honeysuckle  partridgeberry  sedge
	 	shining clubmoss   spinulose woodfern   starflower   sugar maple
	 	twistedstalk violet
Yalmer	ATD (Acer-Tsuga-Dryopteris)	American beech  Canada mayflower  shining clubmoss  spinulose shield fern  starflower
		sugar maple  twistedstalk  violet
1D: Trenary	  AVO (Acer-Viola-Osmorhiza)   	American fly honeysuckle   Canada white violet   baneberry   blue cohosh
		downy yellow violet   maidenhair fern   sedge
	 	shining clubmoss  spinulose woodfern  starflower
		sweet cicely  trillium  twistedstalk  wild lily-of-the-valley
33: Ensley	    FI/TTM (Fraxinus-   Impatiens/Tsuga-Thuja-Mitella)	       American fly benevousle
	impactens/isuga-inuja-mitelia/	American red raspberry  Canada mayflower  bedstraw
	 	bunchberry dogwood  common ladyfern  horsetail  jewelweed
	 	naked miterwort  oakfern  sedge  sensitive fern
	 	small enchanter's nightshade  spinulose woodfern  starflower

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
5B: Munising,	 	
calcareous		
substratum	ATD/AVO (Acer-Tsuga-	Canada mayflower
	Dryopteris/Acer-Viola-	Canada yew
	Osmorhiza)	interrupted fern  oakfern
	 	red elderberry
	 	sedge  shining clubmoss
	 	spinulose woodfern
	 	starflower
	 	sugar maple
	 	twistedstalk
	 	violet
Yalmer,		
calcareous	İ	
substratum	ATD/AVO (Acer-Tsuga-	Canada mayflower
	Dryopteris/Acer-Viola-	Canada yew
	Osmorhiza)	Canadian white violet
		bedstraw
		rattlesnake fern
		spinulose shield fern
		sweet cicely
		twistedstalk
Frohling,	 	
calcareous		
	ATD/AVO (Acer-Tsuga-	Canada mayflower
	Dryopteris/Acer-Viola-	Canada yew
	Osmorhiza)	Canadian white violet
		bedstraw
	İ	rattlesnake fern
	İ	spinulose shield fern
	İ	sweet cicely
	ĺ	twistedstalk
7B: Grand Sable	  ATD/AVO (Acer-Tsuga-	  Canada white violet
	Dryopteris/Acer-Viola-	rattlesnake fern
	Osmorhiza)	shining clubmoss
		spinulose shield fern
	İ	sweet cicely
	İ	twistedstalk
		I
7E:		
Grand Sable	AVO (Acer-Viola-Osmorhiza)	Canada white violet
		rattlesnake fern
		shining clubmoss
		spinulose shield fern
		i
	 	sweet cicely
		sweet cicely  twistedstalk
8B:	 	-
	          TTM (Tsuga-Thuja-Mitella)	-
	        TTM (Tsuga-Thuja-Mitella) 	twistedstalk
	        TTM (Tsuga-Thuja-Mitella)   	twistedstalk
	        TTM (Tsuga-Thuja-Mitella)     	twistedstalk
8B: Rhody	      TTM (Tsuga-Thuja-Mitella)     	twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
38B:		
	   ATD-CI (Acer-Tsuga-Dryopteris,   Circaea-Impatiens Phase)   	horsetail  oakfern  red elderberry  spinulose shield fern  twistedstalk  violet
10B:	 	
Waiska, very	  ATD (Acer-Tsuga-Dryopteris)         	bedstraw   hairy Solomon's seal   ladyfern   sedge   spinulose shield fern   twistedstalk   violet   wild lily-of-the-valley
42:	 	
	FI (Fraxinus-Impatiens) 	Canada mayflower   bedstraw   dewberry   goldthread   horsetail   interrupted fern   jewelweed   ladyfern   long beechfern   marsh marigold   sedge   sensitive fern   spinulose shield fern   wood sorrel
46:	 	
	  TMC/TTM (Tsuga-Maianthemum-   Coptis/Tsuga-Thuja-Mitella)       	Canada mayflower   bunchberry dogwood   goldthread   horsetail   naked miterwort   northern dewberry   sedge   snowberry   speckled alder   sphagnum moss   willow   wood sorrel   yellow beadlily
47C: Deerton	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	American beech   American starflower   Canada mayflower   ground pine   shining clubmoss   spinulose shield fern   sugar maple   twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type   (primary/secondary)	Characteristic vegetation
47C:	 	
Au Train	ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
	Dryopteris Phase)	ground pine
		partridgeberry
		shining clubmoss
	!	spinulose shield fern
		starflower
7E:	 	
	ATD-D (Acer-Tsuga-Dryopteris,	American beech
	Dryopteris Phase)	American starflower
		Canada mayflower
		ground pine
	i	shining clubmoss
		spinulose shield fern
	i	sugar maple
		twistedstalk
	į	j
Au Train	ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
	Dryopteris Phase)	ground pine
		partridgeberry
		shining clubmoss
		spinulose shield fern
		starflower
18:		
	TMC/TTM (Tsuga-Maianthemum-	  Canada mayflower
Durc	Coptis/Tsuga-Thuja-Mitella)	bunchberry dogwood
	copers/isaga-inaja-miceria/	goldthread
	 	horsetail
	 	naked miterwort
	 	northern dewberry
	 	sedge
	1	snowberry
		speckled alder
		sphagnum moss
		willow
		wood sorrel
		yellow beadlily
	į	i
9B:		
Cookson	AVO (Acer-Viola-Osmorhiza)	Canada white violet
		downy yellow violet
	!	sedge
	!	spinulose woodfern
		sweet cicely
		trillium
		twistedstalk
		wild leek
	 	wild lily-of-the-valley
1:		
	TTM (Tsuga-Thuja-Mitella)	American starflower
		bunchberry dogwood
	İ	goldthread
	i	miterwort
	i	northern dewberry
	İ	sedge
	İ	sphagnum moss
		sphagnum moss  wild lily-of-the-valley

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type	Characteristic vegetation
and soll name	(primary/secondary)	1
51:		
Ruse	TTM (Tsuga-Thuja-Mitella)	American starflower
		bunchberry dogwood
		goldthread
	İ	miterwort
		northern dewberry
	İ	sedge
		sphagnum moss
		wild lily-of-the-valley
2B:		j
Summerville	AVO-A (Acer-Viola-Osmorhiza,	maidenhair fern
	Adiantum Phase)	rattlesnake fern
		sedge
	İ	sweet cicely
		trillium
		twistedstalk
57:		İ
Carbondale	TTM/TTS (Tsuga-Thuja-	American starflower
	Mitella/Tsuga-Thuja-Sphagnum)	Canada mayflower
		bog Labrador tea
		bog rosemary
		bunchberry dogwood
	İ	cinnamon fern
		goldthread
		horsetail
	İ	marsh marigold
		naked miterwort
		northern dewberry
		royal fern
		sedge
	! 	sensitive fern
	! 	sphagnum moss
	! 	spinulose woodfern
	 	twinflower
	I 	violet
	 	wood sorrel
	 	yellow beadlily
Lupton	  TTM/TTS (Tsuga-Thuja-	American starflower
	Mitella/Tsuga-Thuja-Sphagnum)	Canada mayflower
		bunchberry dogwood
	! 	cinnamon fern
	[ 	goldthread
	[ 	horsetail
	I 	naked miterwort
	 	1
	 	northern dewberry
	 	sedge
	[ 	sensitive fern
		sphagnum moss
	1	spinulose woodfern
		twinflower
		violet

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
57:		
	  TTM (Tsuga-Thuja-Mitella) 	  American starflower  Canada mayflower
		bog rosemary
		bunchberry dogwood
		cinnamon fern
		goldthread
	 	horsetail  marsh marigold
	 	naked miterwort
	 	northern dewberry
	 	royal fern
	 	sedge
	 	sensitive fern
	 	sphagnum moss
	 	spinulose woodfern
		twinflower
		violet
	İ	wood sorrel
	i İ	yellow beadlily
	İ	
58:		
Dawson	PCS (Picea-Chamaedaphne-	blueberry
	Sphagnum)	bog Labrador tea
		bog rosemary
		cottongrass
		goldthread
		leatherleaf
	 	sedge
	 	sphagnum moss
Greenwood	  PCS (Picea-Chamaedaphne-	blueberry
	Sphagnum)	bog Labrador tea
		bog rosemary
	i İ	cottongrass
		goldthread
		leatherleaf
		sedge
		sphagnum moss
T 1	Dag (Diese Chemendenher	h1h
гохтей	PCS (Picea-Chamaedaphne-   Sphagnum)	blueberry  bog Labrador tea
		bog rosemary
	 	cottongrass
	 	goldthread
		leatherleaf
		sedge
		sphagnum moss
59:		
Chippeny		Canada mayflower
	Mitella/Tsuga-Thuja-Sphagnum)	bedstraw
		bunchberry dogwood
		dewberry
	[ 	goldthread
	 	naked miterwort
	 	sedge
	 	snowberry
	 	speckled alder
	 	sphagnum moss  twinflower
	I .	CMITTLIOMET
	İ	wood sorrel

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
59: Nahma	     TTM/TTS (Tsuga-Thuja-   Mitella/Tsuga-Thuja-Sphagnum)       	American starflower bunchberry dogwood goldthread miterwort northern dewberry sedge sphagnum moss wild lily-of-the-valley
60. Histosols and Aquents	 	 
61. Pits		
62F. Udipsamments and Udorthents	 	
64B: Kiva	  AVO (Acer-Viola-Osmorhiza)       	Canada white violet  rattlesnake fern  spinulose shield fern  sweet cicely  trillium  twistedstalk
64D: Kiva	AVO (Acer-Viola-Osmorhiza) 	Canada white violet  rattlesnake fern  spinulose shield fern  sweet cicely  trillium  twistedstalk
65D: Jeske, bedrock terrace	  -  -  TMC (Tsuga-Maianthemum-Coptis)	 
terrace	TMC (Isuga-maianthemum-coptis)	American starriower   Canada mayflower   goldthread   ground pine   sedge   shining clubmoss   sphagnum moss   spinulose shield fern   sugar maple   wood sorrel   yellow beadlily
Gongeau, bedrock terrace	TMC (Tsuga-Maianthemum-Coptis)	American starflower  Canada mayflower  bunchberry dogwood  goldthread  hairy Solomon's seal  sedge  shining clubmoss  sphagnum moss  spinulose shield fern  wood sorrel

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
5D:	 	
Deerton, bedrock		
terrace	ATD-D (Acer-Tsuga-Dryopteris,	American beech
	Dryopteris Phase)	American starflower
		Canada mayflower
		ground pine
		shining clubmoss
		spinulose shield fern
		sugar maple
		twistedstalk
5F:		
Jeske, bedrock		
terrace	TMC (Tsuga-Maianthemum-Coptis)	•
		Canada mayflower
		goldthread
		ground pine
	[ 	sedge
	 	shining clubmoss
	 	sphagnum moss
	 	spinulose shield fern
	[ 	wood sorrel
	 	yellow beadlily
Gongeau, bedrock	 	
-	  TMC-D (Tsuga-Maianthemum-	American starflower
	Coptis, Dryopteris Phase)	Canada mayflower
		bunchberry dogwood
		goldthread
		hairy Solomon's seal
		sedge
		shining clubmoss
		sphagnum moss
		spinulose shield fern
	İ	wood sorrel
Deerton, bedrock	•	
terrace	ATD-D (Acer-Tsuga-Dryopteris,	American beech
	Dryopteris Phase)	American starflower
		Canada mayflower
		ground pine
		shining clubmoss
		spinulose shield fern
	 	sugar maple   twistedstalk
	I 	Cwisconstalk
6D:		
Ruse, bedrock		
	AVO-CI (Acer-Viola-Osmorhiza,	jewelweed
	Circaea-Impatiens Phase)	ladyfern
	·	sedge
		sweet cicely
		wild leek
		yellow marsh marigold
Ensign, bedrock		bunchberry dogwood
-	AVO-CI (Acer-Viola-Osmorhiza,	
-	AVO-CI (Acer-Viola-Osmorhiza,   Circaea-Impatiens Phase)	jewelweed
-	•	jewelweed  ladyfern
-	•	jewelweed  ladyfern  sedge
_	•	jewelweed  ladyfern

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type   (primary/secondary)	Characteristic vegetation
and soil name	(primary/secondary)	1
6D:		
Nykanen, bedrock	İ	i
_	AVO-A (Acer-Viola-Osmorhiza,	false Solomon's seal
	Adiantum Phase)	horsetail
		ladyfern
	I 	maidenhair fern
	I 	sedge
	I 	smooth yellow violet
	 	spinulose shield fern
	 	sweet cicely
	 	wild leek
	I 	
56F:		
Ruse, bedrock	İ	i
	AVO-CI (Acer-Viola-Osmorhiza,	jewelweed
	Circaea-Impatiens Phase)	ladyfern
	<u></u>	sedge
		sweet cicely
		wild leek
	I 	yellow marsh marigold
	[ [	
Ensign, bedrock		
-	AVO-CI (Acer-Viola-Osmorhiza,	bunchberry dogwood
	Circaea-Impatiens Phase)	jewelweed
		ladyfern
		sedge
		sweet cicely
		wild leek
Nykanen, bedrock		j
terrace	AVO-A (Acer-Viola-Osmorhiza,	false Solomon's seal
	Adiantum Phase)	horsetail
		ladyfern
	į	maidenhair fern
	į	sedge
	į	smooth yellow violet
	į	spinulose shield fern
	İ	sweet cicely
		wild leek
		İ
58.		
Pits, quarry	ĺ	
Pits, quarry		
Pits, quarry		
Pits, quarry	      ATD/AVO (Acer-Tsuga-	      Canada white violet
Pits, quarry	Dryopteris/Acer-Viola-	bedstraw
Pits, quarry		bedstraw rattlesnake fern
Pits, quarry	Dryopteris/Acer-Viola-	bedstraw   rattlesnake fern   spinulose shield fern
Pits, quarry	Dryopteris/Acer-Viola-	bedstraw   rattlesnake fern   spinulose shield fern   sweet cicely
Pits, quarry	Dryopteris/Acer-Viola-	bedstraw
Pits, quarry	Dryopteris/Acer-Viola-	bedstraw   rattlesnake fern   spinulose shield fern   sweet cicely
Pits, quarry 9B: Escanaba	Dryopteris/Acer-Viola-	bedstraw
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-   Osmorhiza) 	bedstraw
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-	bedstraw
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-   Osmorhiza) 	bedstraw rattlesnake fern spinulose shield fern sweet cicely trillium twistedstalk  Canada thistle beaked hazelnut
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-   Osmorhiza) 	bedstraw rattlesnake fern spinulose shield fern sweet cicely trillium twistedstalk  Canada thistle beaked hazelnut blue flag iris
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-   Osmorhiza) 	bedstraw rattlesnake fern spinulose shield fern sweet cicely trillium twistedstalk  Canada thistle beaked hazelnut blue flag iris goldenrod
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-   Osmorhiza) 	bedstraw rattlesnake fern spinulose shield fern sweet cicely trillium twistedstalk  Canada thistle beaked hazelnut blue flag iris goldenrod jewelweed
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-   Osmorhiza) 	bedstraw rattlesnake fern spinulose shield fern sweet cicely trillium twistedstalk  Canada thistle beaked hazelnut blue flag iris goldenrod jewelweed meadow-rue
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-   Osmorhiza) 	bedstraw
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-   Osmorhiza) 	bedstraw
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-   Osmorhiza) 	bedstraw
Pits, quarry  59B: Escanaba	Dryopteris/Acer-Viola-   Osmorhiza) 	bedstraw

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
71A: Sturgeon	  ATD-CI (Acer-Tsuga-Dryopteris,   Circaea-Impatiens Phase)         	Canada thistle   beaked hazelnut   blue flag iris   horsetail   jewelweed   meadow-rue   miscellaneous perennial grasses   sedge   sensitive fern   spinulose shield fern   sweet coltsfoot   wild mint
72E: Deerton, dissected	        ATD-D (Acer-Tsuga-Dryopteris,	      American beech
	Dryopteris Phase) 	American starflower  Canada mayflower  ground pine  shining clubmoss  spinulose shield fern  sugar maple  twistedstalk
Tokiahok, dissected	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)    -  -  -	Canada mayflower  downy yellow violet  hairy Solomon's seal  red elderberry  sedge  spinulose shield fern  starflower  twistedstalk
	  ATD-CI (Acer-Tsuga-Dryopteris,   Circaea-Impatiens Phase)     	gooseberry jewelweed oakfern sedge spinulose shield fern
72F: Deerton, dissected	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)     	American beech American starflower Canada mayflower ground pine shining clubmoss spinulose shield fern sugar maple twistedstalk
Tokiahok, dissected	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)         	Canada mayflower  downy yellow violet  hairy Solomon's seal  red elderberry  sedge  spinulose shield fern  starflower  twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
72F:		
Trout Bay, dissected	  ATD-CI (Acer-Tsuga-Dryopteris,   Circaea-Impatiens Phase)	gooseberry  jewelweed
	_	oakfern
		sedge  spinulose shield fern
6C:	 	
Garlic, dissected	  ATD-D (Acer-Tsuga-Dryopteris,	American starflower
	Dryopteris Phase)	Canada mayflower
		bunchberry dogwood
	 	ground pine partridgeberry
	 	shining clubmoss
	į	spinulose woodfern
		sugar maple
		twistedstalk
	]	wild sarsaparilla wintergreen
	 	yellow beadlily
Blue Lake,	İ	İ
dissected	ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
	Dryopteris Phase)	brackenfern
	 	ground pine sedge
		shining clubmoss
	į	spinulose shield fern
		starflower
		sugar maple
	 	twistedstalk
Voelker,		
dissected	ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
	Dryopteris Phase)	elderberry
		hairy Solomon's seal spinulose shield fern
	 	spinulose shield fern  starflower
		twistedstalk
6E:	  -	
Garlic,		
dissected	:	American starflower
	Dryopteris Phase)	Canada mayflower
	]	partridgeberry shining clubmoss
	 	spinulose woodfern
		sugar maple
	į	twistedstalk
		wild sarsaparilla
		wintergreen
		i
Blue Lake.	 	
Blue Lake, dissected	      ATD-D (Acer-Tsuga-Dryopteris,	 
	      ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	
		  Canada mayflower  brackenfern  ground pine
		  Canada mayflower  brackenfern  ground pine  sedge
		  Canada mayflower  brackenfern  ground pine  sedge  shining clubmoss
		  Canada mayflower  brackenfern  ground pine  sedge  shining clubmoss

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
76E:		
Voelker, dissected	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	  Canada mayflower  elderberry
		hairy Solomon's seal
	ĺ	spinulose shield fern
		starflower
		twistedstalk
6F:		
Garlic,	  ATD-D (Acer-Tsuga-Dryopteris,	American starflower
dissected	Dryopteris Phase)	Canada mayflower
		partridgeberry
	į	shining clubmoss
		spinulose woodfern
		sugar maple
		twistedstalk
	] 	wild sarsaparilla  wintergreen
	[ [	wintergreen
Blue Lake,		
dissected	ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
	Dryopteris Phase)	brackenfern   ground pine
	 	sedge
		shining clubmoss
	į	spinulose shield fern
		starflower
		sugar maple
	 	twistedstalk
Voelker,	 	
dissected	ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
	Dryopteris Phase)	elderberry
		hairy Solomon's seal
	 	spinulose shield fern  starflower
		twistedstalk
'7B:	 	
	ATD-D (Acer-Tsuga-Dryopteris,	American starflower
	Dryopteris Phase)	Canada mayflower
		bunchberry dogwood
	1	ground pine
	 	partridgeberry  shining clubmoss
	[ [	spinulose woodfern
		sugar maple
	į	twistedstalk
		wild sarsaparilla
		wintergreen
	] 	yellow beadlily
Blue Lake	  ATD-D (Acer-Tsuga-Dryopteris,	  Canada mayflower
	Dryopteris Phase)	brackenfern
	!	ground pine
		sedge
		shining clubmoss
	] 	spinulose shield fern  starflower
	I I	starriower  sugar maple
		twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
7B: Voelker	   ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)     	Canada mayflower elderberry hairy Solomon's seal spinulose shield fern starflower twistedstalk
77D: Garlic	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	American starflower Canada mayflower bunchberry dogwood ground pine partridgeberry shining clubmoss spinulose woodfern sugar maple twistedstalk wild sarsaparilla wintergreen yellow beadlily
Blue Lake	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)     	Canada mayflower brackenfern ground pine sedge shining clubmoss spinulose shield fern starflower sugar maple twistedstalk
Voelker	   ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)     	Canada mayflower elderberry hairy Solomon's seal spinulose shield fern starflower twistedstalk
7E: Garlic	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase) 	American starflower Canada mayflower partridgeberry shining clubmoss spinulose woodfern sugar maple twistedstalk wild sarsaparilla wintergreen
Blue Lake	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)   	Canada mayflower brackenfern ground pine sedge shining clubmoss spinulose shield fern starflower sugar maple twistedstalk
Voelker	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)    -	Canada mayflower elderberry hairy Solomon's seal spinulose shield fern starflower twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
38:		
	  TTM (Tsuga-Thuja-Mitella) 	American starflower
		common ladyfern
		goldthread
		naked miterwort
	 	northern dewberry rattlesnake fern
	 	rattlesnake rern  sedge
	 	sphagnum moss
		spinulose woodfern
		wood sorrel
Ensley	  FI (Fraxinus-Impatiens)	American fly honeysuckle
		American red raspberry
		Canada mayflower
	 	bedstraw
	 	bunchberry dogwood  common ladyfern
	 	horsetail
		jewelweed
	İ	naked miterwort
		oakfern
		sedge
		sensitive fern
		small enchanter's nightshade
		spinulose woodfern
	 	starflower
3:	TTTM (Tauga Thuis Mitalla)	American starflower
lawas	TTM (Tsuga-Thuja-Mitella)	Canada mayflower
	 	cinnamon fern
		goldthread
	İ	horsetail
		naked miterwort
		northern dewberry
		royal fern
		sensitive fern
	 	sphagnum moss  spinulose woodfern
	 	twinflower
		wood sorrel
Deford	  TMC (Tsuga/Maianthemum-Copti	 s)  American starflower
		Canada mayflower
		bunchberry dogwood
		coptis
		eastern teaberry
		long beech fern oakfern
	 	sedge
	 	shining clubmoss
		brackenfern
	İ	
5B:	ATD (Acer-Tsuga-Dryopteris)	American beech
		American starflower
		elderberry
	İ	hairy Solomon's seal
	I .	
		shining clubmoss
	 	shining clubmoss  spinulose woodfern

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
104C:		
	ATD (Acer-Tsuga-Dryopteris)	Canada mayflower   bedstraw   elderberry   false Solomon's seal   hairy Solomon's seal   ladyfern   rattlesnake fern   sedge   spinulose woodfern   twistedstalk   violet
109D:	 	
	QAE (Quercus-Acer-Epigaea)  -  -	clubmoss  lowbush blueberry  brackenfern  wintergreen
	PCS (Picea-Chamaedaphne-   Sphagnum)    -  -	blueberry   bog Labrador tea   bog rosemary   cottongrass   goldthread   leatherleaf   sedge   sphagnum moss
109F:	AON (Agen Overgus Messinium)	alubmaga
kousseau	AQV (Acer-Quercus-Vaccinium)       	clubmoss  lowbush blueberry  brackenfern  wintergreen
Dawson	PCS (Picea-Chamaedaphne-   Sphagnum)    -  -	blueberry  bog Labrador tea  bog rosemary  cottongrass  goldthread  leatherleaf  sedge  sphagnum moss
125B:		
Stutts	ATD (Acer-Tsuga-Dryopteris)  -  -  -  -  -	American starflower  elderberry  hairy Solomon's seal  rattlesnake fern  sedge  spinulose shield fern  stiff clubmoss  wild sarsaparilla
Kalkaska	ATD (Acer-Tsuga-Dryopteris)	Canada beadruby  Sambucus racemosa var. racemosa  false Solomon's seal  sedge  shining clubmoss  spinulose woodfern  trillium

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
125D: Stutts	  ATD (Acer-Tsuga-Dryopteris)     	American starflower elderberry hairy Solomon's seal rattlesnake fern sedge spinulose shield fern stiff clubmoss
Kalkaska	  ATD (Acer-Tsuga-Dryopteris)       	wild sarsaparilla    Canada beadruby     Sambucus racemosa var. racemosa     false Solomon's seal     sedge     shining clubmoss     spinulose woodfern     trillium
125E: Stutts	   ATD (Acer-Tsuga-Dryopteris)       	American starflower elderberry hairy Solomon's seal rattlesnake fern sedge spinulose shield fern stiff clubmoss wild sarsaparilla
Kalkaska	ATD (Acer-Tsuga-Dryopteris)	Canada beadruby Sambucus racemosa var. racemosa false Solomon's seal sedge shining clubmoss spinulose woodfern trillium
135B: Munising, calcareous substratum	ATD/AVO (Acer-Tsuga- Dryopteris/Acer-Viola- Osmorhiza)	Canada mayflower Canada yew interrupted fern oakfern red elderberry sedge shining clubmoss spinulose woodfern starflower sugar maple twistedstalk violet

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type	Characteristic vegetation
and soil name	(primary/secondary)	
135B:	 	
	  FI (Fraxinus-Impatiens)	American fly honeysuckle
		American red raspberry
		Canada mayflower
		bedstraw
		bunchberry dogwood
		common ladyfern
		horsetail
	İ	jewelweed
	İ	naked miterwort
	İ	oakfern
	İ	sedge
		sensitive fern
		small enchanter's nightshade
		spinulose woodfern
	İ	starflower
	İ	İ
L45C:	İ	İ
Munising,		
dissected, very	İ	
_	ATD (Acer-Tsuga-Dryopteris)	Canada mayflower
•		false Solomon's seal
	İ	honeysuckle
	İ	partridgeberry
	İ	red elderberry
	į	sedge
	į	shining clubmoss
	İ	spinulose woodfern
	į	starflower
	İ	sugar maple
	İ	twistedstalk
		violet
	į	
Yalmer,	į	
dissected, very	į	
_	ATD (Acer-Tsuga-Dryopteris)	American beech
-	i	Canada mayflower
	į	shining clubmoss
	İ	spinulose shield fern
	İ	starflower
		sugar maple
		twistedstalk
		violet
.46B:		i
	ATD (Acer-Tsuga-Dryopteris)	Canada mayflower
. 3,1		false Solomon's seal
		honeysuckle
		partridgeberry
	 	red elderberry
	 	sedge
	I 	sedge  shining clubmoss
	I I	snining clubmoss  spinulose woodfern
	I I	starflower
	] 	starilower  sugar maple
	] 	sugar maple  twistedstalk
	1	LWISCEUSCAIK
	· !	violet

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
14CD		!
l46B: Skanee, stony	  TMC (Tsuga/Maianthemum-Coptis)   	  Canada mayflower  bunchberry dogwood  eastern teaberry
		goldthread  hairy Solomon's seal
		sedge
	 	shining clubmoss  spinulose shield fern
		starflower
	 	wild sarsaparilla  wood sorrel
	 	yellow beadlily
47A:		
Skanee, very stony	  TMC (Tsuga/Maianthemum-Coptis)	  Canada mayflower
		bunchberry dogwood  eastern teaberry
	 	goldthread
	İ	hairy Solomon's seal
		sedge
	 	shining clubmoss  spinulose shield fern
		starflower
	İ	wild sarsaparilla
		wood sorrel
	 	yellow beadlily
Gay, very stony	TMC/FMC (Tsuga-Maianthemum-	American red raspberry
	Coptis/Fraxinus-Mentha-Carex)	Canada mayflower
	 	common ladyfern  dewberry
	İ	elderberry
		gooseberry
		grasses
	 	jewelweed  mint
		nightshade
	ļ	sedge
	 	stinging nettle
48B:	 	American starflower
Snoepac	ATD/AVO (Acer-Tsuga-   Dryopteris/Acer-Viola-	Canada mayflower
	Osmorhiza)	Canada white violet
		blue cohosh
		common ladyfern  downy yellow violet
	 	hairy Solomon's seal
		sedge
	İ	smooth yellow violet
		spinulose woodfern
	 	sugar maple  sweet cicely
		trillium
	İ	violet
		wild leek
		yellow beadlily

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
	<u> </u>	
148B: Ensley	  FI (Fraxinus-Impatiens)     	American fly honeysuckle American red raspberry Canada mayflower bedstraw bunchberry dogwood
	 	common ladyfern  horsetail  jewelweed  naked miterwort  oakfern
	 	sedge  sensitive fern  small enchanter's nightshade  spinulose woodfern  starflower
L55A:		
Zeba, very stony	TMC (Tsuga-Maianthemum-Coptis)             	brackenfern   bunchberry dogwood   eastern teaberry   hairgrass   sedge   shining clubmoss   wild sarsaparilla
		wood sorrel  yellow beadlily
To 201 20111		
	  TMC/FI (Tsuga-Maianthemum-   Coptis/Fraxinus-Impatiens)           	Canada mayflower   bunchberry dogwood   goldthread   horsetail   northern dewberry   sedge   snowberry   speckled alder   sphagnum moss   willow   wood sorrel   yellow beadlily
L57B: Reade	  AVO (Acer-Viola-Osmorhiza)       	hairy Solomon's seal  rattlesnake fern  sedge  sweet cicely  trillium  twistedstalk
Nahma	  TTM (Tsuga-Thuja-Mitella)           	American starflower   bunchberry dogwood   goldthread   miterwort   northern dewberry   sedge   sphagnum moss   wild lily-of-the-valley

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type   (primary/secondary)	Characteristic vegetation
158C: Munising, dissected,	ATD (Acer-Tsuga-Dryopteris)	Canada mayflower
Abbaye, dissected, stony	          ATD (Acer-Tsuga-Dryopteris)	violet
•		hairy Solomon's seal  partridgeberry  red elderberry  spinulose shield fern  starflower  sugar maple  violet
160B: Paquin	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)         	American starflower  Canada beadruby  Sambucus racemosa var. racemosa  bunchberry dogwood  coptis  partridgeberry  red maple  shining clubmoss  spinulose woodfern  wild sarsaparilla
Finch	TMC-V (Tsuga-Maianthemum-   Coptis, Vaccinium Phase)   	American starflower  Canada mayflower  blueberry  brackenfern  bunchberry dogwood  eastern teaberry  goldthread  sedge  shining clubmoss  wild sarsaparilla  wood sorrel  yellow beadlily
161B: Yellowdog, stony	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	Canada mayflower

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol	Habitat type	Characteristic vegetation
and soil name	(primary/secondary)	1
61D.		
L61B:	  ATD-D (Acer-Tsuga-Dryopteris,	  Canada mayflower
Buckroe, stony		feather Solomon's seal
	Dryopteris Phase)	
		red elderberry
		shining clubmoss
		spinulose shield fern
		starflower
		sugar maple
.65B:	 	
Chocolay, very	 	
stony	ATD (Acer-Tsuga-Dryopteris)	Canada mayflower
		ground pine
		hairy Solomon's seal
		oakfern
		sedge
		shining clubmoss
		spinulose shield fern
		starflower
		sugar maple
		twistedstalk
		yellow beadlily
		ļ
Waiska, very		
stony	ATD (Acer-Tsuga-Dryopteris)	bedstraw
		hairy Solomon's seal
		ladyfern
		rattlesnake fern
		sedge
		spinulose shield fern
		trillium
		twistedstalk
		violet
166:	 	
	PCS/PO (Picea-Chamaedaphne-	  bog rosemary
	Sphagnum/Picea-Osmunda)	bunchberry dogwood
		cinnamon fern
		creeping snowberry
	[ [	jewelweed
	 	leatherleaf
	 	long beech fern
	I 	oakfern
	 	ostrich fern
	1	royal fern
		Loyar rein
	 	godgo
	 	sedge
		sphagnum moss
		sphagnum moss  starflower
		sphagnum moss  starflower  twistedstalk
		sphagnum moss  starflower

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
167:		
Skandia, stony	PO (Picea-Osmunda)	American fly honeysuckle bunchberry dogwood
	]	gooseberry
	 	jewelweed  long beech fern
	 	oakfern
		ostrich fern
		redosier dogwood
		sedge
		sphagnum moss
		starflower
		twistedstalk
	 	violet  water horsetail
	[ 	wintergreen
		wood sorrel
		yellow beadlily
		Ī
Jacobsville,		
stony	TMC (Tsuga-Maianthemum-Coptis)	•
		bunchberry dogwood
	 	goldthread  horsetail
	 	northern dewberry
		sedge
		snowberry
		speckled alder
		sphagnum moss
		willow
		wood sorrel
	]	yellow beadlily
170B:	 	
Chocolay, very		
	ATD (Acer-Tsuga-Dryopteris)	Canada mayflower
		ground pine
		hairy Solomon's seal
		oakfern
		sedge
	 	shining clubmoss  spinulose shield fern
	[ 	starflower
		sugar maple
		twistedstalk
		yellow beadlily
L71B:		
Paavola, very		
stony	ATD (Acer-Tsuga-Dryopteris)	Canada mayflower   false Solomon's seal
	[ 	honeysuckle
		partridgeberry
		red elderberry
		sedge
		shining clubmoss
		spinulose woodfern
		starflower
		sugar maple
	I	twistedstalk
	1	violet

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
172D: Buckroe, very bouldery	  -  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)    - 	Canada mayflower feather Solomon's seal red elderberry shining clubmoss spinulose shield fern starflower sugar maple
Rock outcrop.  172F: Buckroe, very bouldery	    -  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)   	Canada mayflower feather Solomon's seal red elderberry shining clubmoss spinulose shield fern starflower sugar maple
Rock outcrop.  176B: Croswell	  -  AQV (Acer-Quercus-Vaccinium)             	beaked hazelnut brackenfern cowwheat eastern teaberry pin cherry serviceberry starflower sweetfern trailing arbutus twinflower vaccinium
Kinross	  TTS (Tsuga-Thuja-Sphagnum)       	black spruce     bunchberry dogwood     coptis     leatherleaf     sedge     speckled alder     vaccinium
181E: Frohling, dissected, stony	    -  ATD (Acer-Tsuga-Dryopteris)       	Canada mayflower sedge shining clubmoss spinulose shield fern starflower sugar maple twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil nam	Habitat type e (primary/secondary)	Characteristic vegetation
181E: Tokiahok, dissected,		
	ATD (Acer-Tsuga-Dryopteris)           	Canada mayflower  downy yellow violet  hairy Solomon's seal  red elderberry  sedge  spinulose shield fern  starflower  sugar maple  twistedstalk
185B: McMaster	AVO (Acer-Viola-Osmorhiza)	Canada mayflower   bloodroot   leatherwood   rattlesnake fern   spinulose woodfern   sugar maple   sweet cicely
186B: Chatham, ston	y AVO-A (Acer-Viola-Osmorhiza,   Adiantum Phase)	Canada white violet   bedstraw   downy yellow violet   grasses   hairy Solomon's seal   maidenhair fern   red elderberry   spinulose shield fern   sweet cicely   violet   wild leek
186D: Chatham, ston	y AVO-A (Acer-Viola-Osmorhiza,   Adiantum Phase) 	Canada white violet   bedstraw   downy yellow violet   grasses   hairy Solomon's seal   maidenhair fern   red elderberry   spinulose shield fern   sweet cicely   violet   wild leek
187B: Reade	AVO-A/AVO (Acer-Viola-   Osmorhiza, Adiantum   Phase/Acer-Viola-Osmorhiza) 	hairy Solomon's seal  rattlesnake fern  sedge  sweet cicely  trillium  twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
	!	
.88B: Eben, stony	- AVO-A/AOC (Acer-Viola-   Osmorhiza, Adiantum   Phase/Acer-Osmorhiza-	Canada white violet   bedstraw   bloodroot
	Caulophyllum)    -	blue cohosh   downy yellow violet   northern maidenhair fern   rattlesnake fern
		spinulose woodfern   sweet cicely   trillium
		twistedstalk  wild leek 
88D:	 - AVO-A/AOC (Acer-Viola-	  Canada white violet
EDen, stony	Osmorhiza, Adiantum   Phase/Acer-Osmorhiza-	bedstraw   bloodroot
	Caulophyllum)	blue cohosh
		downy yellow violet northern maidenhair fern
		rattlesnake fern spinulose woodfern
		sweet cicely
		trillium  twistedstalk
		wild leek
88E:		Canada white violet
Eben, scony	- AVO-A/AOC (Acer-Viola- Osmorhiza, Adiantum	bedstraw
	Phase/Acer-Osmorhiza-	bloodroot
	Caulophyllum)	blue cohosh
		downy yellow violet northern maidenhair fern
		rattlesnake fern
		spinulose woodfern
		sweet cicely  trillium
		twistedstalk
		wild leek
91B:		
Ruse	- TTM (Tsuga-Thuja-Mitella)	American starflower bunchberry dogwood
		goldthread
		miterwort  northern dewberry
		sedge
i		sphagnum moss
		wild lily-of-the-valley
Ensign	- TM (Tsuga-Maianthemum)	Canada mayflower
		beaked hazelnut  bedstraw
	i	brackenfern
	ļ	ground pine
		sedge  spinulose shield fern
	i	starflower
	ļ.	wild sarsaparilla
		yellow beadlily

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
.97B:		
	ATD/AVO (Acer-Tsuga-   Dryopteris/Acer-Viola-   Osmorhiza)  -	American starflower  Canada mayflower  Canada white violet  blue cohosh  common ladyfern  downy yellow violet  hairy Solomon's seal
		sedge  smooth yellow violet  spinulose woodfern  sugar maple  sweet cicely  trillium  violet  wild leek  yellow beadlily
Trenary	    AVO/ATD (Acer-Viola-	American fly honeysuckle
,	Osmorhiza/Acer-Tsuga-   Dryopteris) 	Canada mayflower  Canada white violet  baneberry  blue cohosh  downy yellow violet
		maidenhair fern  sedge  shining clubmoss  spinulose woodfern
	 	starflower   sugar maple   sweet cicely   trillium   twistedstalk
.98B:	 	+
	ATD/AVO (Acer-Tsuga-   Dryopteris/Acer-Viola-   Osmorhiza)	American starflower  Canada mayflower  Canada white violet  blue cohosh  common ladyfern
	  -  - 	downy yellow violet  hairy Solomon's seal  sedge  smooth yellow violet  spinulose woodfern
	 	sugar maple  sweet cicely  trillium  violet
	 	wild leek  yellow beadlily
Reade	  AVO (Acer-Viola-Osmorhiza)   	hairy Solomon's seal rattlesnake fern sedge
		sweet cicely  trillium  twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
200A:		
	TMC/TMC-D (Tsuga-Maianthemum-	bunchberry dogwood
	Coptis/Tsuga-Maianthemum-	goldthread
	Coptis, Dryopteris Phase)	wood sorrel
		spinulose woodfern
	 	shining clubmoss Canada mayflower
	 	starflower
		yellow beadlily
		American fly honeysuckle
	į	twistedstalk
		sedge
		sphagnum moss
Ensley	  FI/TTM (Fraxinus-	American fly honeysuckle
-	Impatiens/Tsuga-Thuja-Mitella)	
		Canada mayflower
		bedstraw
		bunchberry dogwood
		common ladyfern
		horsetail
	 	jewelweed   naked miterwort
	 	oakfern
	 	sedge
		sensitive fern
		small enchanter's nightshade
	į	spinulose woodfern
	İ	starflower
202B:	 	
Sauxhead, very		
stony	ATD-D (Acer-Tsuga-Dryopteris,	brackenfern
	Dryopteris Phase)	elderberry
		shining clubmoss
		spinulose shield fern
		starflower
		twistedstalk
	 	wild lily-of-the-valley
206B:		
Traunik	AVO-A/AVO (Acer-Viola-	Canada white violet
	Osmorhiza, Adiantum Phase/Acer-Viola-Osmorhiza)	Jack in the pulpit blue cohosh
	Inabe/Acel-Viola-OSMOIniza/	downy yellow violet
	 	leatherwood
		northern maidenhair fern
	i	sedge
	į	smooth yellow violet
		sugar maple
		sweet cicely
		trillium
206D:	[ 	
Traunik	AVO-A/AVO (Acer-Viola-	Canada white violet
	Osmorhiza, Adiantum	Jack in the pulpit
	Phase/Acer-Viola-Osmorhiza)	blue cohosh
		downy yellow violet
		leatherwood
		northern maidenhair fern
		sedge
		smooth yellow violet
	] 	sugar maple  sweet cicely
	İ.	PAGE CTOSTA
	İ	trillium

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
11B:		
	  ATD (Acer-Tsuga-Dryopteris) 	Canada mayflower   false Solomon's seal   honeysuckle
	 	partridgeberry  red elderberry
		sedge  shining clubmoss
	 	spinulose woodfern   starflower
	 	twistedstalk  violet
Abbaye	  ATD (Acer-Tsuga-Dryopteris) 	  Canada mayflower  hairy Solomon's seal
		partridgeberry
	I	red elderberry
		spinulose shield fern
	 	starflower  sugar maple
		violet
214B: Kalkaska	 	American beech
narnabna	Dryopteris Phase)	American starflower
	į	Canada mayflower
		elderberry
		hairy Solomon's seal
		shining clubmoss
		spinulose woodfern  sugar maple
Blue Lake	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	  Canada mayflower  brackenfern
	Dryopteris Phase/	ground pine
		sedge
	į	shining clubmoss
	İ	spinulose shield fern
		starflower
		sugar maple  twistedstalk
14D:		
Kalkaska		American beech
	Dryopteris Phase)	American starflower
	 	Canada mayflower  elderberry
	 	hairy Solomon's seal
		shining clubmoss
	İ	spinulose woodfern
	 	sugar maple
Blue Lake	ATD-D (Acer-Tsuga-Dryopteris, Dryopteris Phase)	Canada mayflower  brackenfern
	[	ground pine
	ļ.	sedge
		shining clubmoss
	1	spinulose shield fern  starflower
	 	starilower  sugar maple
		twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
214E:		
	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	American beech   American starflower
		Canada mayflower  elderberry
		hairy Solomon's seal shining clubmoss
		spinulose woodfern  sugar maple
Blue Lake	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	  Canada mayflower  brackenfern
	bryopteris Phase;	ground pine
		sedge
	 	shining clubmoss spinulose shield fern
		starflower
	!	sugar maple
	 	twistedstalk
221B: Jeske	TMC (Tsuga-Maianthemum-Coptis)	American starflower
		Canada mayflower
	İ	goldthread
		ground pine sedge
		shining clubmoss
	İ	sphagnum moss
		spinulose shield fern
		wood sorrel  yellow beadlily
Au Train	ATD-D (Acer-Tsuga-Dryopteris,	  Canada mayflower
	Dryopteris Phase)	ground pine
		partridgeberry
		shining clubmoss spinulose shield fern
		starflower
Gongeau	TMC (Tsuga-Maianthemum-Coptis)	
		Canada mayflower bunchberry dogwood
	 	goldthread
	İ	hairy Solomon's seal
		sedge
		shining clubmoss   sphagnum moss
	 	spinulose shield fern
		wood sorrel
225B:		
Cusino	ATD-D (Acer-Tsuga-Dryopteris, Dryopteris Phase)	honeysuckle sedge
	DIJOPOELLS FMase/	sedge  shining clubmoss
	İ	spinulose shield fern
	!	starflower
		trout lily twistedstalk
		wild lily-of-the-valley

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
25D:		
	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase) 	honeysuckle sedge shining clubmoss spinulose shield fern starflower trout lily twistedstalk wild lily-of-the-valley
26B:	 	I I
	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase) 	American beech American starflower Canada mayflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple
Cusino	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)     	American beech American starflower   Canada mayflower   elderberry   hairy Solomon's seal   shining clubmoss   spinulose woodfern   sugar maple
226D:		
Kalkaska	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)    - 	American beech American starflower Canada mayflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple
Cusino	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase) 	American fly honeysuckle sedge shining clubmoss spinulose shield fern starflower trout lily twistedstalk wild lily-of-the-valley
226E:		
Kalkaska	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	American beech American starflower Canada mayflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple
Cusino	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)    -  -	American fly honeysuckle sedge shining clubmoss spinulose shield fern starflower trout lily twistedstalk wild lily-of-the-valley

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
	ļ	ļ
226F:		
Kalkaska		American beech
	Dryopteris Phase)	American starflower
		Canada mayflower
		elderberry
		hairy Solomon's seal
	1	shining clubmoss  spinulose woodfern
	 	sugar maple
	 	sugar mapre
Cusino	ATD-D (Acer-Tsuga-Dryopteris,	American fly honeysuckle
	Dryopteris Phase)	sedge
		shining clubmoss
		spinulose shield fern
		starflower
		trout lily
		twistedstalk
		wild lily-of-the-valley
227A:	 	 
	  ATD-D/TMC-D (Acer-Tsuga-	  Canada mayflower
2	:	elderberry
	Phase/Tsuga-Maianthemum-Coptis,	-
	Dryopteris Phase)	spinulose shield fern
		starflower
	İ	wood sorrel
232B:		
Shelldrake		blueberry  brackenfern
		goldthread
		hairgrass
	 	lowbush blueberry
	 	sedge
	1 	seage  shining clubmoss
	] 	spinulose shield fern
	 	starflower
		twinflower
		wild lily-of-the-valley
		wintergreen
		wood sorrel
	İ	İ
233B:	[	!
Abbaye, very	AMD (Amount Bound Bound )	
stony	ATD (Acer-Tsuga-Dryopteris)	Canada mayflower
		hairy Solomon's seal
		partridgeberry
		red elderberry
	 	spinulose shield fern
	 	starflower
		sugar maple  violet

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
233B:	 	
	TMC (Tsuga-Maianthemum-Coptis)	Canada mayflower
		brackenfern
		bunchberry dogwood
		eastern teaberry
		hairgrass
		sedge
		shining clubmoss
		wild sarsaparilla
		wood sorrel
	 	yellow beadlily
34A:	 	
Levasseur, very	 	
_	  TMC (Tsuga-Maianthemum-Coptis)	  Canada mayflower
scony	IMC (Isuga-Maranthemum-Coptis)	blueberry
	 	bunchberry dogwood
	I 	goldthread
	! 	long beech fern
		shining clubmoss
	 	sphagnum moss
	 	spinulose shield fern
	 	starflower
		wood sorrel
	İ	
Burt, very stony	TMC/TTM (Tsuga-Maianthemum-	Canada mayflower
	Coptis/Tsuga-Thuja-Mitella)	bunchberry dogwood
	İ	goldthread
	İ	horsetail
		northern dewberry
		sedge
		speckled alder
		sphagnum moss
235B:	İ	
Sauxhead, very	İ	İ
stony	ATD-D (Acer-Tsuga-Dryopteris,	brackenfern
	Dryopteris Phase)	elderberry
		shining clubmoss
		spinulose shield fern
		starflower
		twistedstalk
		wild lily-of-the-valley
Burt, very stony	TMC/TTM (Tsuga-Maianthemum-	Canada mayflower
	Coptis/Tsuga-Thuja-Mitella)	bunchberry dogwood
		goldthread
		horsetail
		northern dewberry
	 	sedge
	 	speckled alder
		sphagnum moss
	 	wood sorrel
36B:	 	
Waiska,		
extremely	 	
	  ATD (Acer-Tsuga-Dryopteris)	bedstraw
		hairy Solomon's seal
	 	ladyfern
	 	sedge
	1 	spinulose shield fern
	 	twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type   (primary/secondary)	Characteristic vegetation
36D: Waiska, extremely	 	     
bouldery	ATD (Acer-Tsuga-Dryopteris) 	bedstraw  hairy Solomon's seal  ladyfern  sedge
	 	spinulose shield fern  twistedstalk  violet  wild lily-of-the-valley
37B: Chatham	    AVO (Acer-Viola-Osmorhiza)	    Canada white violet
	  -  -	bedstraw  downy yellow violet  grasses
	 	hairy Solomon's seal  maidenhair fern  red elderberry
	 	spinulose shield fern  sweet cicely  violet  wild leek
Davies	  TTM (Tsuga-Thuja-Mitella)   	  American starflower  bedstraw  common ladyfern
		dewberry  goldthread  naked miterwort
		northern dewberry  rattlesnake fern  sedge
	 	sphagnum moss  spinulose woodfern  wood sorrel
39B: Longrie	AVO-A (Acer-Viola-Osmorhiza,	    Canadian white violet
	Adiantum Phase)	hairy Solomon's seal  rattlesnake fern  spinulose shield fern  sweet cicely  twistedstalk
Shingleton	AVO-A (Acer-Viola-Osmorhiza,   Adiantum Phase) 	Canada white violet  red elderberry  spinulose shield fern  sweet cicely  twistedstalk  wild leek
40F:	 	gooseherry
irout Bay	ATD-CI (Acer-Tsuga-Dryopteris,   Circaea-Impatiens Phase)   	jewelweed   jewelweed   oakfern   sedge

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type   (primary/secondary)	Characteristic vegetation
240F:	 	
	ATD-CI (Acer-Tsuga-Dryopteris,   Circaea-Impatiens Phase) 	American starflower  Canada mayflower  bunchberry dogwood  goldthread  hairy Solomon's seal  sedge  shining clubmoss  sphagnum moss  spinulose shield fern  wood sorrel
Shingleton	  AVO (Acer-Viola-Osmorhiza)       	
Rock outcrop.		
241:	 	
Cacini	TTM (Tsuga-Thuja-Mitella)	American starflower  bedstraw  common ladyfern  goldthread  naked miterwort  northern dewberry  rattlesnake fern  sedge  sphagnum moss  spinulose woodfern  wood sorrel
Gay	TMC (Tsuga-Maianthemum-Coptis)	American red raspberry  Canada mayflower  common ladyfern  dewberry  elderberry  gooseberry  grasses  jewelweed  mint  nightshade  sedge  stinging nettle
242B: Kalkaska, severely burned	 	   brackenfern   eastern teaberry   greygreen reindeer lichen   hairgrass   lowbush blueberry   sedge   trailing arbutus

Table 9.--Forestland Understory Plant Communities--Continued

Map symbo		Habitat type (primary/secondary)	Characteristic vegetation
una borr r	Idalic	(primary, becondary)	
242D:			
Kalkaska,	i		
	nırned	PVD (Pinus-Vaccinium-	brackenfern
20.02017		Deschampsia)	eastern teaberry
		Descriampsia,	greygreen reindeer lichen
			hairgrass
			lowbush blueberry
			sedge
			trailing arbutus
242F:			
Kalkaska,			
severely b	ourned	ATD-D/AQV (Acer-Tsuga-	American starflower
		Dryopteris, Dryopteris	bigleaf aster
		Phase/Acer-Quercus-Vaccinium)	brackenfern
			clubmoss
	į		lowbush blueberry
			sedge
	i		spinulose woodfern
	i		wild lily-of-the-valley
243:			
		None assigned	  blue flag iris
markey		None assigned	bog laurel
			grasses
			sedge
			swamp birch
			willow
245B:			
Trout Bay		TTM (Tsuga-Thuja-Mitella)	bedstraw
			bunchberry dogwood
			naked miterwort
			northern dewberry
			sedge
	İ		sphagnum moss
	į		
Lupton	i	TTM/TTS (Tsuga-Thuja-	American starflower
-	i	Mitella/Tsuga-Thuja-Sphagnum)	bedstraw
			bunchberry dogwood
		naked miterwort	
			northern dewberry
			-
			northern dewberry
			sedge
			sphagnum moss
			violet
			wood sorrel
Gongeau		TTM/TMC (Tsuga-Thuja-	American starflower
		Mitella/Tsuga-Maianthemum-	Canada mayflower
		Coptis)	bunchberry dogwood
	į		goldthread
	i		hairy Solomon's seal
	i		sedge
	i		shining clubmoss
			sphagnum moss
	i		spinulose shield fern
			· -
			wood sorrel

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
		ļ.
246B: Garlic	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	  American starflower  Canada mayflower
		bunchberry dogwood  ground pine
		partridgeberry  shining clubmoss  spinulose woodfern
		sugar maple  twistedstalk
	 	wild sarsaparilla  wintergreen
		yellow beadlily
46D:		İ
Garlic	ATD-D (Acer-Tsuga-Dryopteris,	American starflower
	Dryopteris Phase)	Canada mayflower
		bunchberry dogwood
		ground pine
	1	partridgeberry  shining clubmoss
		snining clubmoss  spinulose woodfern
		sugar maple
		twistedstalk
	İ	wild sarsaparilla
	İ	wintergreen
	[ [	yellow beadlily
46E:	ATD-D (Acer-Tsuga-Dryopteris,	American starflower
Gallic	Dryopteris Phase)	Canada mayflower
	Bryopeerra rhade,	partridgeberry
	į	shining clubmoss
	į	spinulose woodfern
	İ	sugar maple
		twistedstalk
		wild sarsaparilla
		wintergreen
48B: Escanaba	AVO/ATD (Acer-Viola-	  Canada white violet
	Osmorhiza/Acer-Tsuga-	bedstraw
	Dryopteris)	rattlesnake fern
		spinulose shield fern
		sweet cicely
		trillium
		twistedstalk
Greylock	AVO/ATD (Acer-Viola-	Canada white violet
	Osmorhiza/Acer-Tsuga-	rattlesnake fern
	Dryopteris)	spinulose shield fern
		sweet cicely
		trillium twistedstalk
48D:		
Escanaba	AVO/ATD (Acer-Viola-	Canada white violet
	Osmorhiza/Acer-Tsuga-	bedstraw
	Dryopteris)	rattlesnake fern
	1	spinulose shield fern
		sweet cicely

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
and boll name	(Primary, Secondary)	
248D:		
Greylock	AVO/ATD (Acer-Viola-	Canada white violet
	Osmorhiza/Acer-Tsuga-	rattlesnake fern
	Dryopteris)	spinulose shield fern
	!	sweet cicely
		trillium
		twistedstalk
248E:	 	
	  AVO/ATD (Acer-Viola-	
Dodinaba	Osmorhiza/Acer-Tsuga-	bedstraw
	Dryopteris)	rattlesnake fern
	21/060312,	spinulose shield fern
		sweet cicely
	İ	trillium
	į	twistedstalk
Greylock	AVO/ATD (Acer-Viola-	Canada white violet
	Osmorhiza/Acer-Tsuga-	rattlesnake fern
	Dryopteris)	spinulose shield fern
	!	sweet cicely
		trillium
		twistedstalk
1405		
249B:	TMV (Tsuga-Maianthemum-	hmaghanfann
Sauxnead	TMV (Tsuga-Maianthemum-   Vaccinium)	brackenfern  elderberry
	Vaccinium)	shining clubmoss
	 	spinulose shield fern
	 	starflower
		twistedstalk
		wild lily-of-the-valley
	İ	
Skandia	PCS/PO (Picea-Chamaedaphne-	bog rosemary
	Sphagnum/Picea-Osmunda)	bunchberry dogwood
		cinnamon fern
		creeping snowberry
		jewelweed
		leatherleaf
		long beech fern
		oakfern
		ostrich fern
		royal fern
		sedge
		sphagnum moss
		starflower
		twistedstalk
	!	violet
		wintergreen
EOD.		
Chocolay	 	
Chocolay,	ATD (Acer-Tsuga-Dryopteris)	
everement aroua	(weer-randa-privohreria)	ground pine
	 	hairy Solomon's seal
	 	oakfern
		sedge
	 	seage  shining clubmoss
		spinulose shield fern
	I .	starflower
	 	sugar maple

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type   (primary/secondary)	Characteristic vegetation
250B: Jacobsville,	 	
	  TMC (Tsuga-Maianthemum-Coptis) 	bunchberry dogwood
	 	goldthread  horsetail  northern dewberry
	 	sedge   snowberry
	   	speckled alder  sphagnum moss
		wood sorrel  yellow beadlily
51B:		<u> </u>
Greylock	AVO (Acer-Viola-Osmorhiza)	Canada white violet  rattlesnake fern
		spinulose shield fern  sweet cicely
		trillium  twistedstalk
51D: Greylock	    AVO (Acer-Viola-Osmorhiza)	    Canada white violet
•		rattlesnake fern spinulose shield fern
		sweet cicely
	 	trillium  twistedstalk
252A: Finch	    TMC-V (Tsuga-Maianthemum-	American starflower
	Coptis, Vaccinium Phase)	Canada mayflower  blueberry
	  -	brackenfern   bunchberry dogwood
		eastern teaberry
		goldthread  sedge
		shining clubmoss  wild sarsaparilla
		wood sorrel  yellow beadlily
Kinross	PCS (Picea-Chamaedaphne-	black spruce
	Sphagnum)	bunchberry dogwood  coptis
	 	leatherleaf  sedge
		speckled alder  vaccinium
254C: Kalkaska,	 	 
	ATD-D (Acer-Tsuga-Dryopteris,	American beech
	Dryopteris Phase)	American starflower  Canada mayflower
		elderberry hairy Solomon's seal
	1 	shining clubmoss
		spinulose woodfern

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
254C:		
Blue Lake,	 	
aissectea	ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
	Dryopteris Phase)	brackenfern
		ground pine
		sedge
		shining clubmoss
		spinulose shield fern
		starflower
	İ	sugar maple
	İ	twistedstalk
	į	İ
254E:		1
Kalkaska,		
dissected	ATD-D (Acer-Tsuga-Dryopteris,	American beech
	Dryopteris Phase)	American starflower
	·	Canada mayflower
	İ	elderberry
		hairy Solomon's seal
	 	shining clubmoss
	I I	
	 	spinulose woodfern
	] 	sugar maple
Blue Lake,	] 	
	ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
41000004	Dryopteris Phase)	brackenfern
	Diyoptelis Fmase/	ground pine
	 	_ : T
		sedge
		shining clubmoss
		spinulose shield fern
		starflower
		sugar maple
		twistedstalk
254F:		
Kalkaska,	 	
•	ATD-D (Acer-Tsuga-Dryopteris,	American beech
dibbected	:	American starflower
	Dryopteris Phase)	
		Canada mayflower
		elderberry
		hairy Solomon's seal
		shining clubmoss
		spinulose woodfern
		sugar maple
Blue Lake,		
aissectea	ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
	Dryopteris Phase)	brackenfern
		ground pine
		sedge
		shining clubmoss
		spinulose shield fern
	İ	starflower
	 	sugar maple
		twistedstalk
		i
255D:	 	
	    TM (Tsuga-Maianthemum)	American starflower
	    TM (Tsuga-Maianthemum) 	
	  -  TM (Tsuga-Maianthemum)  - 	Canada beadruby
	  -  TM (Tsuga-Maianthemum)    -	Canada beadruby  kinnikinnick
	  TM (Tsuga-Maianthemum)     	Canada beadruby  kinnikinnick  spinulose woodfern
	  TM (Tsuga-Maianthemum)     	Canada beadruby  kinnikinnick

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
56B:	 	
Whitewash	AVO (Acer-Viola-Osmorhiza)	American fly honeysuckle
		American starflower
		false Solomon's seal
		smooth yellow violet
	į	spinulose woodfern
	į	sweet cicely
	į	wild lily-of-the-valley
66A:	 	
Spot	TTS (Tsuga-Thuja-Sphagnum)	bog Labrador tea
		bunchberry dogwood
		goldthread
		sphagnum moss
	İ	wintergreen
Finch	  TMC-V (Tsuga-Maianthemum-	American starflower
	Coptis, Vaccinium Phase)	Canada mayflower
		blueberry
	 	brackenfern
	 	bunchberry dogwood
	I I	eastern teaberry
		-
		goldthread
		sedge
	!	shining clubmoss
		wild sarsaparilla
		wood sorrel
		yellow beadlily
67A:		
Finch	TMC-V (Tsuga-Maianthemum-	American starflower
	Coptis, Vaccinium Phase)	Canada mayflower
		blueberry
		brackenfern
		bunchberry dogwood
	İ	eastern teaberry
	i	goldthread
	1	sedge
	 	shining clubmoss
	 	wild sarsaparilla
		wood sorrel
	 	yellow beadlily
68C:		
Munising,		
calcareous		
substratum,		
	ATD/AVO (Acer-Tsuga-	Canada mayflower
	Dryopteris/Acer-Viola-	Canada yew
	Osmorhiza)	interrupted fern
		oakfern
		red elderberry
	I I	:
	1	sedge
	1	shining clubmoss
	1	spinulose woodfern
		• =
		starflower
	 	starflower  sugar maple
	 	starflower

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
268C: Frohling, calcareous substratum,	        ATD/AVO (Acer-Tsuga-	       Canada mayflower
415566664	Dryopteris/Acer-Viola-   Osmorhiza)	Canada yew   Canadian white violet   bedstraw   rattlesnake fern   spinulose shield fern   sweet cicely   twistedstalk
Cookson,	İ	İ
dissected	ATD/AVO (Acer-Tsuga-   Dryopteris/Acer-Viola-   Osmorhiza) 	Canada white violet  downy yellow violet  sedge  spinulose woodfern  sweet cicely  trillium  twistedstalk  wild leek  wild lily-of-the-valley
269E:	İ	
Frohling, calcareous substratum,	 	
dissected	ATD/AVO (Acer-Tsuga-   Dryopteris/Acer-Viola-   Osmorhiza) 	Canada mayflower   Canada yew   Canadian white violet   bedstraw   rattlesnake fern   spinulose shield fern   sweet cicely   twistedstalk
Garlic, dissected	ATD (Acer-Tsuga-Dryopteris)	American starflower   Canada mayflower   partridgeberry   shining clubmoss   spinulose woodfern   sugar maple   twistedstalk   wild sarsaparilla   wintergreen
Cookson, dissected	  ATD/AVO (Acer-Tsuga-   Dryopteris/Acer-Viola-   Osmorhiza) 	Canada white violet   downy yellow violet   sedge   spinulose woodfern   sweet cicely   trillium   twistedstalk   wild leek   wild lily-of-the-valley

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type   (primary/secondary)	Characteristic vegetation
272C:		
Munising,	 	
calcareous	 	
substratum,	 	
=	ATD/AVO (Acer-Tsuga-	Canada mayflower
	Dryopteris/Acer-Viola-	Canada yew
	Osmorhiza)	interrupted fern
		oakfern
		red elderberry
		sedge
		shining clubmoss
		spinulose woodfern
		starflower
		sugar maple
		twistedstalk
	!	violet
*** 1		
Yalmer,	1	 
calcareous	] 	1
substratum,	  ATD/AVO (Acer-Tsuga-	  Canada mayflower
dissected	Dryopteris/Acer-Viola-	Canada May110wer
	Osmorhiza)	Canadian white violet
	OSMOTHIZA)	bedstraw
	 	rattlesnake fern
	 	spinulose shield fern
		sweet cicely
		twistedstalk
Frohling,	İ	İ
calcareous	İ	İ
substratum,		İ
dissected	ATD/AVO (Acer-Tsuga-	Canada mayflower
	Dryopteris/Acer-Viola-	Canada yew
	Osmorhiza)	Canadian white violet
		bedstraw
		rattlesnake fern
		spinulose shield fern
		sweet cicely
		twistedstalk
275B:		
Munising,	 	i i
calcareous		i
substratum	ATD/AVO (Acer-Tsuga-	Canada mayflower
	Dryopteris/Acer-Viola-	Canada yew
	Osmorhiza)	interrupted fern
		oakfern
		red elderberry
		sedge
		shining clubmoss
		spinulose woodfern
		starflower
		sugar maple
		twistedstalk
	!	violet
	AVO (Acer-Viola-Osmorhiza)	Canada white violet
Cookson		downy yellow violet
Cookson	I .	sedge
Cookson		
Cookson		spinulose woodfern
Cookson	 	sweet cicely
Cookson	 	sweet cicely  trillium
Cookson	 	sweet cicely  trillium  twistedstalk
Cookson	 	sweet cicely  trillium

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
281E: Mongo, dissected	     ATD (Acer-Tsuga-Dryopteris)       	
282B: Furlong	         AVO (Acer-Viola-Osmorhiza)	trillium  twistedstalk  violet      Canada white violet
Turiong		blue cohosh   red elderberry   sedge   spinulose woodfern   sweet cicely   wild leek
	AVO (Acer-Viola-Osmorhiza)	Canada white violet  red elderberry  spinulose shield fern  sweet cicely  twistedstalk  wild leek
282D: Furlong	  AVO (Acer-Viola-Osmorhiza)       	Canada white violet   blue cohosh   red elderberry   sedge   spinulose woodfern   sweet cicely   wild leek
-	AVO (Acer-Viola-Osmorhiza)	Canada white violet  red elderberry  spinulose shield fern  sweet cicely  twistedstalk  wild leek
284B: Steuben		Canada mayflower   sedge   shining clubmoss   spinulose shield fern   starflower   sugar maple   twistedstalk   violet   wood sorrel   yellow beadlily
Blue Lake	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	Canada mayflower   brackenfern   ground pine   sedge   shining clubmoss   spinulose shield fern   starflower   sugar maple   twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
284B:		
	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)   	American starflower    Canada beadruby   clubmoss   lily-of-the-valley   sedge   spinulose woodfern   trillium
2940.		
284D: Steuben	  ATD (Acer-Tsuga-Dryopteris)           	Canada mayflower sedge shining clubmoss spinulose shield fern starflower sugar maple twistedstalk violet wood sorrel yellow beadlily
		ĺ
Rine Take	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	Canada mayflower brackenfern ground pine sedge shining clubmoss spinulose shield fern starflower sugar maple twistedstalk
	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase) 	American starflower   Canada beadruby   clubmoss   lily-of-the-valley   sedge   spinulose woodfern   trillium
284E: Steuben	  ATD (Acer-Tsuga-Dryopteris)	  Canada mayflower
		sedge shining clubmoss spinulose shield fern starflower sugar maple twistedstalk violet wood sorrel yellow beadlily
Blue Lake	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)   	Canada mayflower brackenfern ground pine sedge shining clubmoss spinulose shield fern starflower sugar maple twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
	<u> </u>	<u> </u>
284E: Kalkaska	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)   	American beech American starflower   Canada mayflower   elderberry
	 	hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple
285B:		
Halfaday	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase) 	American starflower  Canada mayflower  elderberry
		hairy Solomon's seal  shining clubmoss  spinulose woodfern  sugar maple
Kinross	  TTS (Tsuga-Thuja-Sphagnum)       	black spruce bunchberry dogwood coptis leatherleaf sedge speckled alder vaccinium
286B:	 	
	AVO (Acer-Viola-Osmorhiza)	Canada white violet rattlesnake fern spinulose shield fern sweet cicely trillium twistedstalk
Cookson	AVO (Acer-Viola-Osmorhiza) 	Canada white violet downy yellow violet sedge spinulose woodfern sweet cicely trillium twistedstalk wild leek wild lily-of-the-valley
287B:	<u> </u>	ļ
McMaster	AVO/ATD (Acer-Viola-   Osmorhiza/Acer-Tsuga-   Dryopteris)   	Canada mayflower   bloodroot   leatherwood   rattlesnake fern   spinulose woodfern   sugar maple   sweet cicely

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type   (primary/secondary)	Characteristic vegetation
287B:	 	
	TMC/TTM (Tsuga-Maianthemum-	bedstraw
	Coptis/Tsuga-Thuja-Mitella)	dewberry
		goldthread
	İ	ladyfern
	İ	long beechfern
	İ	naked miterwort
	İ	sedge
	İ	sensitive fern
	İ	sphagnum moss
	İ	twistedstalk
	İ	wild mint
	İ	wood sorrel
	İ	İ
290A:	İ	
Namur, very	İ	İ
_	TM (Tsuga-Maianthemum)	Virginia strawberry
-	į	choke cherry
	İ	eastern poison ivy
	i	goldenrod
	i	greygreen reindeer lichen
	i	large leaved aster
	i	miscellaneous perennial grasses
	i	yarrow
	i	
Ruse, very stony	TTM (Tsuga-Thuja-Mitella)	Canada mayflower
		bedstraw
	i	bunchberry dogwood
	i	creeping snowberry
	İ	dewberry
		naked miterwort
	I	sedge
	I	sphagnum moss
		twinflower
	i	
292B:	i	
Mashek, sandy	i	
_	AVO (Acer-Viola-Osmorhiza)	Canada white violet
		bloodroot
	İ	maidenhair fern
	İ	rattlesnake fern
	i	sweet cicely
		wild leek
	i	
296D:	İ	
	ATD-D (Acer-Tsuga-Dryopteris,	brackenfern
	Dryopteris Phase)	partridgeberry
	į	sedge
	i	shining clubmoss
	i	spinulose shield fern
		starflower
	I	trillium
		wild lily-of-the-valley
	İ	1
McMillan	ATD (Acer-Tsuga-Dryopteris)	American starflower
	]	elderberry
	İ	hairy Solomon's seal
		rattlesnake fern
		sedge
		spinulose shield fern
		stiff clubmoss
	I .	DOLLE CLUDINODD
	İ	wild sarsaparilla

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol	Habitat type	Characteristic vegetation
and soil name	(primary/secondary)	1
296E:	 	
Islandlake	  ATD-D (Acer-Tsuga-Dryopteris,	brackenfern
	Dryopteris Phase)	partridgeberry
	Diyoptelis Fhase/	sedge
	 	shining clubmoss
	 	spinulose shield fern
	 	starflower
	 	trillium
	 	•
	 	wild lily-of-the-valley
McMillan	ATD (Acer-Tsuga-Dryopteris)	American starflower
		elderberry
	İ	hairy Solomon's seal
	İ	rattlesnake fern
		sedge
		spinulose shield fern
		stiff clubmoss
	 	wild sarsaparilla
97B:	İ	j
Rubicon,		
severely burned	PVD/QAE (Pinus-Vaccinium-	brackenfern
	Deschampsia/Quercus-Acer-	eastern teaberry
	Epigaea)	greygreen reindeer lichen
	İ	hairgrass
	İ	lowbush blueberry
	İ	sedge
	İ	trailing arbutus
	İ	j
297D:		
Rubicon,		
severely burned	PVD/QAE (Pinus-Vaccinium-	brackenfern
	Deschampsia/Quercus-Acer-	eastern teaberry
	Epigaea)	greygreen reindeer lichen
		hairgrass
		lowbush blueberry
		sedge
		trailing arbutus
1005		
98B: Wurtsmith	  TM (Tsuga-Maianthemum)	  Canada mayflower
		blueberry
	 	brackenfern
	 	cowwheat
	 	eastern teaberry
		grasses
		sedge
		serviceberry
		sweetfern
	I .	trailing arbutus
		yellow beadlily

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
298B:		
Deford	FI (Fraxinus-Impatiens) 	American fly honeysuckle American red raspberry Canada mayflower bedstraw bunchberry dogwood common ladyfern horsetail jewelweed naked miterwort oakfern sedge sensitive fern small enchanter's nightshade spinulose woodfern starflower
299F:	 	
Shelldrake	ATD (Acer-Tsuga-Dryopteris)	American fly honeysuckle  Solomon's seal  bedstraw  brackenfern  horsetail  sedge  spinulose shield fern  sweet cicely  twistedstalk  wild lily-of-the-valley
300F: Shelldrake	   TMV (Tsuga-Maianthemum-   Vaccinium)  -  -  -  -  -	blueberry   brackenfern   hairgrass   lowbush blueberry   sedge   shining clubmoss   starflower   twinflower   wild lily-of-the-valley   wintergreen
Dune land.	 	
301F: Cookson, dissected	    AVO (Acer-Viola-Osmorhiza)         	Canada white violet   downy yellow violet   sedge   spinulose woodfern   sweet cicely   trillium   twistedstalk
Nykanen, dissected	    AVO-CI (Acer-Viola-Osmorhiza,   Circaea-Impatiens Phase)   	wild leek  wild lily-of-the-valley    horsetail  jewelweed  ladyfern  smooth yellow violet  sweet cicely  wild leek

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
302B: Dillingham	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)    -  -	American beech American starflower Canada mayflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple
Kalkaska	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	American beech American starflower Canada mayflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple
302D:		
Dillingham	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	American beech American starflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple wild lily-of-the-valley
Kalkaska	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)   	American beech American starflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple wild lily-of-the-valley
302E: Dillingham	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)   	American beech American starflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple wild lily-of-the-valley
Kalkaska	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	American beech American starflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple wild lily-of-the-valley

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
302F:	 	
	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	American starflower elderberry
	 	hairy Solomon's seal  shining clubmoss  spinulose woodfern
		sugar maple  wild lily-of-the-valley
Kalkaska	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	American beech American starflower
		elderberry hairy Solomon's seal
		shining clubmoss
	 	spinulose woodfern  sugar maple
	 	wild lily-of-the-valley
03B: Kiva	AVO (Acer-Viola-Osmorhiza)	  Canada white violet
	į	rattlesnake fern
	] 	spinulose shield fern  sweet cicely
		trillium
		twistedstalk
Trenary	AVO/ATD (Acer-Viola-	American fly honeysuckle
	Osmorhiza/Acer-Tsuga-Dryopteris)	Canada white violet  baneberry
		blue cohosh
		downy yellow violet
	 	maidenhair fern  sedge
		shining clubmoss
	!	spinulose woodfern
	 	starflower  sweet cicely
		trillium
	İ	twistedstalk
	 	wild lily-of-the-valley
03D: Kiva	AVO (Acer-Viola-Osmorhiza)	  Canada white violet
		rattlesnake fern
		spinulose shield fern
		sweet cicely  trillium
		twistedstalk
Trenary	AVO/ATD (Acer-Viola-	American fly honeysuckle
	Osmorhiza/Acer-Tsuga-Dryopteris)	Canada white violet  baneberry
		blue cohosh
	ļ	downy yellow violet
		maidenhair fern  sedge
	[ 	seage  shining clubmoss
	İ	spinulose woodfern
		starflower
	] 	sweet cicely  trillium
	İ	twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
007		
303E: Kiva	  AVO (Acer-Viola-Osmorhiza)     	Canada white violet   rattlesnake fern   spinulose shield fern   sweet cicely   trillium   twistedstalk
Trenary	AVO/ATD (Acer-Viola-   Osmorhiza/Acer-Tsuga-   Dryopteris) 	American fly honeysuckle Canada white violet baneberry blue cohosh downy yellow violet maidenhair fern sedge shining clubmoss spinulose woodfern starflower sweet cicely trillium twistedstalk wild lily-of-the-valley
305B: Wurtsmith	  PVC (Pinus-Vaccinium-Carex)           	Canada mayflower   blueberry   brackenfern   cowwheat   eastern teaberry   grasses   sedge   serviceberry   sweetfern   trailing arbutus   yellow beadlily
Meehan	TMC-V (Tsuga-Maianthemum-   Coptis, Vaccinium Phase)   	Canada mayflower blueberry brackenfern cowwheat eastern teaberry grasses sedge serviceberry sweetfern trailing arbutus yellow beadlily
306C: Deerton, dissected	  -   ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)  - 	American beech American starflower Canada mayflower ground pine shining clubmoss spinulose shield fern sugar maple twistedstalk

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
306C:		
Tokiahok,	 	
	  ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
aibbeetea	Dryopteris Phase)	hairy Solomon's seal
		red elderberry
	! 	sedge
		spinulose shield fern
		starflower
		sugar maple
		twistedstalk
Jeske, dissected	  TMC (Tsuga-Maianthemum-Coptis)	American starflower
	İ	Canada mayflower
	İ	goldthread
	İ	ground pine
	İ	red maple
		sedge
		shining clubmoss
		sphagnum moss
		spinulose shield fern
		wood sorrel
		yellow beadlily
307B:		
Rubicon, very		
deep water		
table	QAE (Quercus-Acer-Epigaea)	cowwheat
		eastern teaberry
		lowbush blueberry
		rare clubmoss
		sedge
	 	sweetfern  trailing arbutus
	 	brackenfern
	 	Diackeniein
307D:	 	
Rubicon, very		
deep water		
_	QAE (Quercus-Acer-Epigaea)	cowwheat
	İ	eastern teaberry
	İ	lowbush blueberry
		rare clubmoss
		sedge
		1
		sweetfern
	  -	trailing arbutus
	 	·
308B:	 	trailing arbutus
	        AQV (Acer-Quercus-Vaccinium)	trailing arbutus
	      -  AQV (Acer-Quercus-Vaccinium)	trailing arbutus  brackenfern 
	       AQV (Acer-Quercus-Vaccinium) 	trailing arbutus  brackenfern      beaked hazelnut
	       AQV (Acer-Quercus-Vaccinium)   	trailing arbutus  brackenfern      beaked hazelnut  cowwheat
	      AQV (Acer-Quercus-Vaccinium)   	trailing arbutus  brackenfern    beaked hazelnut  cowwheat  eastern teaberry
	      AQV (Acer-Quercus-Vaccinium)     	trailing arbutus  brackenfern    beaked hazelnut  cowwheat  eastern teaberry  lowbush blueberry
	      AQV (Acer-Quercus-Vaccinium)     	trailing arbutus  brackenfern          beaked hazelnut  cowwheat  eastern teaberry  lowbush blueberry  rare clubmoss
	      AQV (Acer-Quercus-Vaccinium)       	trailing arbutus  brackenfern    beaked hazelnut  cowwheat  eastern teaberry  lowbush blueberry  rare clubmoss  sedge
Rubicon	AQV (Acer-Quercus-Vaccinium)	trailing arbutus  brackenfern    beaked hazelnut  cowwheat  eastern teaberry  lowbush blueberry  rare clubmoss  sedge  sweetfern
Rubicon		trailing arbutus  brackenfern    beaked hazelnut  cowwheat  eastern teaberry  lowbush blueberry  rare clubmoss  sedge  sweetfern  brackenfern
Rubicon		trailing arbutus  brackenfern    beaked hazelnut  cowwheat  eastern teaberry  lowbush blueberry  rare clubmoss  sedge  sweetfern  brackenfern  clubmoss

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	   Habitat type   (primary/secondary)	Characteristic vegetation
		İ
308D: Rubicon	  AQV (Acer-Quercus-Vaccinium)           	beaked hazelnut   cowwheat   eastern teaberry   lowbush blueberry   rare clubmoss   sedge   sweetfern   brackenfern
Sultz	  AQV (Acer-Quercus-Vaccinium)     	clubmoss  lowbush blueberry  brackenfern  wintergreen
309B:	 	
Rubicon, deep	  QAE (Quercus-Acer-Epigaea)         	cowwheat   eastern teaberry   lowbush blueberry   rare clubmoss   sedge   sweetfern   trailing arbutus   brackenfern
309D:		
Rubicon, deep water table	  QAE (Quercus-Acer-Epigaea)           	cowwheat   eastern teaberry   lowbush blueberry   rare clubmoss   sedge   sweetfern   trailing arbutus   brackenfern
310B: Kalkaska, burned	  TMV/TM (Tsuga-Maianthemum-   Vaccinium/Tsuga-Maianthemum)     	American starflower bigleaf aster brackenfern clubmoss lowbush blueberry sedge spinulose shield fern wild lily-of-the-valley
310D:	 	
	TMV/TM (Tsuga-Maianthemum-   Vaccinium/Tsuga-Maianthemum)    -  -  -  -	American starflower   bigleaf aster   brackenfern   clubmoss   lowbush blueberry   sedge   spinulose shield fern   wild lily-of-the-valley
	  TMV/TM (Tsuga-Maianthemum-   Vaccinium/Tsuga-Maianthemum)         	American starflower   bigleaf aster   brackenfern   clubmoss   lowbush blueberry   sedge   spinulose shield fern   wild lily-of-the-valley

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
311B: Kalkaska, very deep water table, burned	      ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)     	American starflower bigleaf aster brackenfern clubmoss lowbush blueberry sedge wild lily-of-the-valley
311D: Kalkaska, very deep water	 	
_	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)    -  -  -	American starflower   bigleaf aster   brackenfern   clubmoss   lowbush blueberry   sedge   wild lily-of-the-valley
312B: Islandlake,	 	
burned	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase) 	American beech American starflower Canada mayflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern
312D: Islandlake, burned	     ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)   	American beech American starflower Canada mayflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern
313B:  Kalkaska, deep water table, burned	      ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)     	American starflower bigleaf aster brackenfern clubmoss lowbush blueberry sedge wild lily-of-the-valley
313D: Kalkaska, deep water table, burned	  -   ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)  - 	American starflower bigleaf aster brackenfern clubmoss lowbush blueberry sedge wild lily-of-the-valley

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
and sorr name	(Primary/secondary)	1
314B: Blue Lake, very		
deep water		
table, burned	ATD-D (Acer-Tsuga-Dryopteris,	-
	Dryopteris Phase)	brackenfern
		ground pine
		sedge
		shining clubmoss
		spinulose shield fern
		starflower
	İ	sugar maple
	İ	twistedstalk
315B:	İ	j
Blue Lake, deep	· 	j
water table,	İ	j
	ATD-D (Acer-Tsuga-Dryopteris,	Canada mayflower
	Dryopteris Phase)	brackenfern
		ground pine
	 	sedge
	I 	shining clubmoss
	 	spinulose shield fern
	 	starflower
	 	twistedstalk
	 	cwistedstaik
316B:	 	
Blue Lake,	 	
-	  ATD-D (Acer-Tsuga-Dryopteris,	Canada mauflowor
Durneu		brackenfern
	Dryopteris Phase)	1
		ground pine
		sedge
		shining clubmoss
		spinulose shield fern
		starflower
		twistedstalk
2165		
316D:	 	
Blue Lake,	AED D (Agen House Deventoris	  Canada mayflower
Parmea	ATD-D (Acer-Tsuga-Dryopteris,	brackenfern
	Dryopteris Phase)	1
		ground pine
		sedge
		shining clubmoss
		spinulose shield fern
		starflower
		twistedstalk
317B:		
77 - 7 11		1
Kalkaska, very		
deep water	Lamp D (3 mount Down to all	American starflower
deep water	ATD-D (Acer-Tsuga-Dryopteris,	
deep water	Dryopteris Phase)	bigleaf aster
deep water		bigleaf aster  brackenfern
deep water		1 3
deep water		brackenfern
deep water		brackenfern  clubmoss
deep water		brackenfern   clubmoss   lowbush blueberry

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol and soil name	Habitat type (primary/secondary)	Characteristic vegetation
317D: Kalkaska, very deep water table	  -  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)  -  -	American starflower   bigleaf aster   brackenfern   clubmoss   lowbush blueberry   sedge
318B: Islandlake, very deep water table	ATD-D (Acer-Tsuga-Dryopteris, Dryopteris Phase)	wild lily-of-the-valley
318D: Islandlake, very deep water	 	
table	ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)	American beech  American starflower  Canada mayflower  elderberry  hairy Solomon's seal  shining clubmoss  spinulose woodfern  sugar maple
319B: Islandlake	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)     	American beech  American starflower  Canada mayflower  elderberry  hairy Solomon's seal  shining clubmoss  spinulose woodfern  sugar maple
319D: Islandlake	  ATD-D (Acer-Tsuga-Dryopteris,   Dryopteris Phase)      - 	American beech  American starflower  Canada mayflower  elderberry  hairy Solomon's seal  shining clubmoss  spinulose woodfern  sugar maple
319E: Islandlake	  ATD (Acer-Tsuga-Dryopteris)           	American beech American starflower Canada mayflower elderberry hairy Solomon's seal shining clubmoss spinulose woodfern sugar maple

Table 9.--Forestland Understory Plant Communities--Continued

Map symbol	Habitat type	Characteristic vegetation
and soil name	(primary/secondary)	1
100.		
319F: Islandlake	  ATD (Acer-Tsuga-Dryopteris)	American beech
ISIAHUIANE	ACEL-ISUGA-DIYOPCELIS)	American starflower
	 	Canada mayflower
		elderberry
		hairy Solomon's seal
		shining clubmoss
		spinulose woodfern
		sugar maple
320B:		
Kalkaska, deep		
water table	ATD-D (Acer-Tsuga-Dryopteris,	American starflower
	Dryopteris Phase)	bigleaf aster
		brackenfern
		clubmoss
		lowbush blueberry
		sedge
	į	wild lily-of-the-valley
	į	İ
321B:	į	İ
Kalkaska	ATD-D (Acer-Tsuga-Dryopteris,	American starflower
	Dryopteris Phase)	Canada beadruby
		clubmoss
		lily-of-the-valley
		sedge
		shining clubmoss
	[ ]	spinulose woodfern
	I 	sugar maple
	 	sugar mapre
Deerton	  ATD-D (Acer-Tsuga-Dryopteris,	American beech
Decreon	Dryopteris Phase)	American starflower
	Diyopteris Fhase/	Canada mayflower
	 	ground pine  shining clubmoss
		spinulose shield fern
		sugar maple
		twistedstalk
321D:		
Kalkaska	ATD-D (Acer-Tsuga-Dryopteris,	American starflower
	Dryopteris Phase)	sedge
		shining clubmoss
		spinulose shield fern
		sugar maple
		trillium
		wild lily-of-the-valley
Deerton	ATD-D (Acer-Tsuga-Dryopteris,	American beech
	Dryopteris Phase)	American starflower
		Canada mayflower
		ground pine
	İ	shining clubmoss
	İ	spinulose shield fern
	İ	sugar maple
	İ	twistedstalk

#### Table 10a. -- Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

and soil name	Pct. of map unit	- 		Picnic areas		Playgrounds   	
		'		Rating class and	:	Rating class and	Value
10: Beaches	    100	    Not rated	     	    Not rated	     	    Not rated	
11C: Deer Park	90	    Not limited 	     	    Not limited 	   	  Somewhat limited   Slope	0.88
11E: Deer Park	     95 	:	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00
11F: Deer Park	     98 	: -	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00
12B: Rubicon	     90 	    Not limited 	     	    Not limited 	     	    Somewhat limited   Slope	      0.12
12D: Rubicon	     95 		      0.37	    Somewhat limited   Slope	      0.37	    Very limited   Slope	      1.00
12E: Rubicon	     95 	:	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00
13B: Kalkaska	     94 	: -	      1.00	    Very limited   Too sandy 	      1.00	· -	    1.00  0.12
13D: Kalkaska	     96   	Too sandy	      1.00  0.37	· -	      1.00  0.37	  Very limited   Slope	    1.00  1.00
13E: Kalkaska	    100 	    Very limited   Slope	      1.00	    Very limited   Too sandy	      1.00	    Very limited   Slope	    1.00  1.00
15A: Croswell	     92 	    Somewhat limited		    Somewhat limited	 	    Somewhat limited	0.39
16A: Paquin	     90 	    Very limited   Depth to cemented   pan		    Very limited   Depth to cemented   pan		    Very limited   Depth to cemented   pan	       1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	-   		Picnic areas   		Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
17A: Au Gres	     92   	· -	      1.00	    Very limited   Depth to   saturated zone	      1.00	    Very limited   Depth to   saturated zone	      1.00
18: Kinross	   92     	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	saturated zone	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
19: Deford	   92     	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
21A: Ingalls	   90       	Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.35	saturated zone	    1.00    0.35	Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.35
24B: Munising	   90       	-	1.00	  Very limited   Depth to   saturated zone   Depth to cemented   pan	1.00	  Very limited   Depth to   saturated zone   Depth to cemented   pan   Slope	  1.00    0.99    0.50
25B: Munising	   55       	-	1.00	Very limited Depth to saturated zone Depth to cemented pan	1.00	  Very limited   Depth to   saturated zone   Depth to cemented   pan   Slope	    1.00    0.99    0.50
Yalmer	   30       	Very limited Depth to saturated zone Depth to cemented pan	    1.00    0.90	  Very limited   Depth to   saturated zone   Depth to cemented   pan	    1.00    0.90	saturated zone	  1.00    0.90    0.50
25D: Munising	   55         	   Very limited   Depth to   saturated zone   Depth to cemented   pan   Slope	İ	   Very limited   Depth to   saturated zone   Depth to cemented   pan   Slope	1.00	   Very limited   Depth to   saturated zone   Slope   Depth to cemented   pan	    1.00    1.00  0.99

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map			Picnic areas		Playgrounds   		
	unit   		Value	Rating class and   limiting features		Rating class and   limiting features	Value	
25D: Yalmer	   30         	saturated zone Depth to cemented pan	1.00	saturated zone Depth to cemented pan	    1.00    0.90 	saturated zone	    1.00    1.00  0.90	
31D: Trenary	     85 	    Somewhat limited   Slope	0.16	    Somewhat limited   Slope	      0.16	    Very limited   Slope	      1.00	
33: Ensley	     90     	Very limited Depth to saturated zone Ponding	1.00	saturated zone	    1.00    1.00	saturated zone	    1.00    1.00	
35B: Munising, calcareous substratum	:	Very limited Depth to saturated zone Depth to cemented pan	1.00	 	      1.00    0.95	saturated zone Depth to cemented pan	    1.00    0.95 	
Yalmer, calcareous substratum	   30       	Very limited Depth to saturated zone Depth to cemented pan	1.00	Very limited Depth to saturated zone Depth to cemented pan	1.00	saturated zone Depth to cemented pan	    1.00    0.64    0.12	
Frohling, calcareous substratum		    Somewhat limited   Depth to cemented   pan 		    Somewhat limited   Depth to cemented   pan 		    Somewhat limited   Depth to cemented   pan   Slope	      0.90    0.88	
37B: Grand Sable	     90	    Not limited		    Not limited	     	    Not limited	   	
37E: Grand Sable	   98 	  Very limited   Slope 	    1.00	  Very limited   Slope 	      1.00	    Very limited   Slope 	      1.00	
38B: Rhody	   60     	  Very limited   Depth to   saturated zone   Ponding	1.00	saturated zone	    1.00    1.00	saturated zone	  -  1.00  -  1.00	
Towes	   30   	  Very limited   Depth to   saturated zone	  1.00 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	   Camp areas   		Picnic areas     		Playgrounds   	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40B: Waiska, very stony	     90 	  Somewhat limited   Large stones	      0.47	    Somewhat limited   Large stones 	      0.47	  Somewhat limited   Large stones   Slope	    0.47  0.12
42: Davies	     90     	Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
46: Jacobsville, very stony	     90     	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  -  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  -  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00
47C: Deerton	   <b>55</b>   	  Somewhat limited   Slope	0.01	  Somewhat limited   Slope	0.01	  Very limited   Slope   Depth to bedrock	  1.00  0.84
Au Train	   30       	   Very limited   Depth to   saturated zone   Depth to bedrock	  1.00    1.00 	  Very limited   Depth to   saturated zone   Depth to bedrock	  1.00    1.00	   Very limited   Depth to   saturated zone   Depth to bedrock   Slope	  1.00    1.00  0.50
47E: Deerton	   55   	  Very limited   Slope 	    1.00	  Very limited   Slope 	    1.00	  Very limited   Slope   Depth to bedrock	  1.00  0.84
Au Train	   30     	  Very limited   Depth to   saturated zone   Depth to bedrock   Slope	  1.00    1.00  0.63	  Very limited   Depth to   saturated zone   Depth to bedrock   Slope	  1.00    1.00  0.63	  Very limited   Depth to   saturated zone   Slope   Depth to bedrock	  1.00    1.00  1.00
48: Burt	   90       	  Very limited   Depth to   saturated zone   Depth to bedrock   Ponding	    1.00    1.00  1.00	Very limited Depth to saturated zone Depth to bedrock Ponding	1.00	saturated zone	    1.00    1.00  1.00
49B: Cookson	     90 	    Not limited 	     	    Not limited 	     	    Not limited 	
51: Nahma	50   50       	Very limited   Depth to   saturated zone   Organic matter   content   Slow water	  1.00    1.00    1.00	   Very limited   Depth to   saturated zone   Organic matter   content   Slow water	  1.00    1.00    1.00	   Very limited   Depth to   saturated zone   Organic matter   content   Slow water	  1.00    1.00 
	   	movement Ponding	1.00	movement Ponding	1.00	movement Ponding	1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas   		Playgrounds   	
	İ İ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
51:		 		 		 	
Ruse	40	Very limited   Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
	   	saturated zone Depth to bedrock Ponding	  1.00  1.00	saturated zone Depth to bedrock Ponding	  1.00  1.00	saturated zone Depth to bedrock Ponding	  1.00  1.00
	į		į		į	Gravel content	0.06
52B:		 		 		 	
Summerville	85	Very limited   Depth to bedrock	:	Very limited   Depth to bedrock	1	Very limited   Depth to bedrock	1.00
57:							
Carbondale	30	Very limited   Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Organic matter	1.00	Organic matter	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Lupton	30	  Verv limited		  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone Ponding	1.00	saturated zone Ponding	1.00	saturated zone Ponding	1.00
Tawas	30	  Very limited		  Very limited		  Very limited	i
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	   	Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
58:		 		 		 	
Dawson	30	Very limited   Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Greenwood	30	  Very limited		  Very limited		  Very limited	i
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter	1.00	Organic matter	1.00	Organic matter	1.00
		content Ponding	  1.00	content Ponding	  1.00	content Ponding	1.00
Loxley	20	 		 		  Very limited	
roxteA	30	Depth to	1.00	Very limited   Depth to	1.00	Depth to	1.00
	į	saturated zone		saturated zone		saturated zone	
		Ponding 	1.00	Ponding 	1.00 	Ponding 	1.00
59:		 		 		 	
Chippeny	55 	Very limited   Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
	į	saturated zone		saturated zone	į	saturated zone	į
		Organic matter	1.00	Organic matter	1.00	Organic matter	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 10a.--Recreational Development--Continued

	Pct. of map unit	i		Picnic areas   		Playgrounds   	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
59:	 	 	 	 		 	
Nahma	30	Depth to	1.00	Very limited   Depth to	1.00		1.00
	   	saturated zone Organic matter content	  1.00 	saturated zone   Organic matter   content	1.00	saturated zone   Organic matter   content	1.00
	<u> </u> 	Slow water movement	1.00	Slow water   movement	1.00	Slow water   movement	1.00
	 	Ponding 	1.00 	Ponding 	1.00 	Ponding 	1.00
60: Histosols	   50 	  Very limited   Depth to	    1.00	  Very limited   Ponding	    1.00	  Very limited   Depth to	    1.00
	   	saturated zone Ponding	1.00	Depth to saturated zone	1.00	saturated zone   Organic matter	1.00
		Organic matter content	1.00	Organic matter content	1.00	content Ponding	1.00
Aquents	   50 	  Very limited   Depth to	    1.00	  Very limited   Ponding	1.00	  Very limited   Depth to	1.00
		saturated zone Ponding	1.00	Depth to saturated zone	1.00	saturated zone Ponding	1.00
61: Pits	    100	    Not rated 	     	    Not rated 	   	    Not rated 	   
62F: Udipsamments	     50	    Not rated	   	    Not rated		    Not rated	
Udorthents	50	  Not rated	   	  Not rated		  Not rated	
64B: Kiva	     90 	  Not limited	     	    Not limited 		    Somewhat limited   Slope	0.12
64D: Kiva	     90 	  Somewhat limited   Slope	      0.16	    Somewhat limited   Slope	      0.16	  Very limited   Slope	1.00
65D: Jeske, bedrock terrace	       45   	  Very limited   Depth to   saturated zone	        1.00	  -  Very limited   Depth to   saturated zone	        1.00	  -  Very limited   Depth to   saturated zone   Depth to bedrock	      1.00    0.99
Gongeau, bedrock	     	   	     	   		Slope	0.12
terrace	25     	   Very limited   Depth to   saturated zone   Depth to bedrock	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	  1.00    1.00
Deerton, bedrock terrace	     20 	    Somewhat limited   Slope	      0.84	    Somewhat limited   Slope	      0.84	    Very limited   Slope   Depth to bedrock	      1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas		Playgrounds   		
		'	Value	Rating class and limiting features	Value	Rating class and   limiting features	Value	
65F: Jeske, bedrock terrace	     45     		        1.00	  -  Very limited   Depth to   saturated zone	        1.00   	 	      1.00    0.99  0.50	
Gongeau, bedrock terrace	   25     	: -	1.00	saturated zone	1.00	saturated zone	    1.00    1.00	
Deerton, bedrock terrace	     20 	  Very limited   Slope 	      1.00	  Very limited   Slope 	      1.00	    Very limited   Slope   Depth to bedrock	    1.00  0.84	
66D: Ruse, bedrock terrace	     40       	Depth to saturated zone Depth to bedrock	1.00	Very limited   Depth to   saturated zone   Depth to bedrock   Slow water   movement	      1.00    1.00  0.60	saturated zone	      1.00    1.00  0.60	
Ensign, bedrock terrace	   30       		1.00	saturated zone	1.00	saturated zone	    1.00    1.00  0.50	
Nykanen, bedrock terrace	   20       	Depth to   saturated zone   Depth to bedrock	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock   Slope	1.00	  Very limited   Depth to   saturated zone   Slope   Depth to bedrock	    1.00    1.00  1.00	
66F: Ruse, bedrock terrace	       40     	-	1.00	 	1.00	saturated zone	      1.00    1.00	
Ensign, bedrock terrace	   30       	  Very limited   Depth to   saturated zone   Depth to bedrock	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	  1.00    1.00	saturated zone	  1.00    1.00  0.12	

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas   		Playgrounds   	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66F: Nykanen, bedrock	   	 	   	   	   	   	   
terrace	   20   	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	  1.00
	   	Slope   Depth to bedrock	1.00  1.00 	Slope   Depth to bedrock 	1.00  1.00 	Slope   Depth to bedrock 	1.00
68: Pits, quarry	  100 	  Not rated 	   	  Not rated 	   	  Not rated 	   
69B: Escanaba	   85 	  Not limited   	     	  Not limited   	 	  Somewhat limited   Slope	    0.12
71A:							i
Evart	70   	Very limited   Depth to   saturated zone		Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to   saturated zone	  1.00 
	   	Flooding   Ponding 	1.00  1.00 		1.00  0.40 		1.00  1.00 
Sturgeon	20   	  Very limited   Depth to   saturated zone	  1.00 	  Very limited   Depth to   saturated zone	  1.00 	  Very limited   Depth to   saturated zone	  1.00 
	 	Flooding	1.00	Flooding	0.40	Flooding 	1.00
72E: Deerton, dissected	     40 	  Very limited   Slope	    1.00	  Very limited   Slope 	    1.00	  Very limited   Slope   Depth to bedrock	    1.00  0.84
Tokiahok, dissected	   30   	  Very limited   Slope   Depth to cemented   pan	    1.00  0.90	  Very limited   Slope   Depth to cemented   pan	1.00	  Very limited   Slope   Depth to cemented   pan	    1.00  0.90
Trout Bay, dissected	   15 	: -	    1.00	Very limited Depth to saturated zone	    1.00	Very limited Depth to saturated zone	    1.00
	   	Organic matter content Slope	1.00		1.00	Organic matter	1.00
	 	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock 	1.00
72F: Deerton, dissected	   40 	  Very limited   Slope 	    1.00 	  Very limited   Slope 	    1.00 	  Very limited   Slope   Depth to bedrock	    1.00  0.84
Tokiahok, dissected	   25 	  Very limited   Slope   Depth to cemented	1.00	  Very limited   Slope   Depth to cemented	1.00	  Very limited   Slope   Depth to cemented	1.00
		pan pan		pan pan		pan pan	

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas   		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72F: Trout Bay, dissected	   20     	Very limited Depth to saturated zone Slope Organic matter	    1.00    1.00	  Very limited   Slope   Depth to   saturated zone   Organic matter	    1.00  1.00 	Very limited  Depth to  saturated zone  Slope  Organic matter	    1.00    1.00  1.00
		content Depth to bedrock	1.00	content Depth to bedrock	1.00	content  Depth to bedrock	1.00
76C: Garlic, dissected	     40 	  Not limited	     	    Not limited 		Very limited Slope	      1.00
Blue Lake, dissected	30	  Not limited 	   	  Not limited 		Very limited   Slope	1.00
Voelker, dissected	   20     	  Very limited   Depth to cemented   pan 	    1.00   	  Very limited   Depth to cemented   pan 	    1.00   	Very limited  Depth to cemented  pan  Slope	    1.00    1.00
76E: Garlic, dissected	   40 		    1.00	  Very limited   Slope	1.00	Very limited Slope	    1.00
Blue Lake, dissected	30	  Very limited   Slope	1.00	  Very limited   Slope	1.00	Very limited Slope	1.00
Voelker, dissected	   20     	Depth to cemented pan	  -  1.00  -  1.00	Very limited Depth to cemented pan Slope	  1.00    1.00	Very limited Slope Depth to cemented pan	    1.00  1.00 
76F: Garlic, dissected	   40 	  Very limited   Slope	    1.00	  Very limited   Slope	1.00	  Very limited   Slope	    1.00
Blue Lake, dissected	   30 	  Very limited   Slope	    1.00	  Very limited   Slope	1.00	  Very limited   Slope	1
Voelker, dissected	   20     	  Very limited   Slope   Depth to cemented   pan	    1.00  1.00	Very limited Slope Depth to cemented pan	  1.00  1.00	Very limited Slope Depth to cemented pan	    1.00  1.00
77B: Garlic	     40 	    Not limited 	     	    Not limited 		  Somewhat limited   Slope	      0.12
Blue Lake	   30 	  Not limited 	   	  Not limited 		Somewhat limited Slope	    0.12
Voelker	   20   	  Very limited   Depth to cemented   pan	    1.00 	  Very limited   Depth to cemented   pan		  Very limited   Depth to cemented   pan   Slope	    1.00    0.12

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas		Playgrounds   	
		Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
77D: Garlic	     40 	    Somewhat limited   Slope	      0.16	    Somewhat limited   Slope	      0.16	    Very limited   Slope	      1.00
Blue Lake	30	  Somewhat limited   Slope	    0.16	  Somewhat limited   Slope	      0.16	  Very limited   Slope	1.00
Voelker	   20   	  Very limited   Depth to cemented   pan   Slope		  Very limited   Depth to cemented   pan   Slope		  Very limited   Slope   Depth to cemented   pan	  1.00  1.00
77E:	 	 	 	 	l I	 	
Garlic	40	  Very limited   Slope	1.00	  Very limited   Slope	    1.00	  Very limited   Slope	1.00
Blue Lake	30		1.00	  Very limited   Slope	1	  Very limited   Slope	1.00
Voelker	   20   	  Very limited   Slope   Depth to cemented   pan	1.00	  Very limited   Slope   Depth to cemented   pan	1.00	  Very limited   Slope   Depth to cemented   pan	  1.00  1.00
00.			 				
88: Cathro	   55       	  Very limited   Depth to   saturated zone   Organic matter   content   Ponding	    1.00    1.00 	saturated zone Organic matter content	  1.00    1.00    1.00	saturated zone	  1.00    1.00    1.00
Ensley	   35   	Depth to saturated zone	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
93: Tawas	     70   	saturated zone Organic matter	    1.00    1.00	saturated zone Organic matter	      1.00    1.00	saturated zone Organic matter	      1.00    1.00
Deford	       20 	content Ponding Very limited Depth to saturated zone Ponding	  1.00      1.00 	content Ponding Very limited Depth to saturated zone Ponding	  1.00      1.00 	content Ponding Very limited Depth to saturated zone Ponding	  1.00      1.00    1.00
95B: Liminga	       90 	Ponding      Not limited	<b>1.00</b>     	Ponding      Not limited	<b>1.00</b>       	Fonding      Somewhat limited   Slope	1.00          0.12

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds   	
	<u> </u> 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
104C: Fence, dissected	   90         	  Somewhat limited   Depth to   saturated zone   Slow water   movement	    0.98    0.60	  Somewhat limited   Depth to   saturated zone   Slow water   movement	    0.75    0.60 	  Very limited   Slope   Depth to   saturated zone   Slow water   movement	    1.00  0.98    0.60
109D:		 	 	 		 	
Rousseau	50   	Somewhat limited   Slope 	  0.37 	Somewhat limited   Slope 	  0.37 	Very limited   Slope 	1.00
Dawson	45     	Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	Very limited   Depth to   saturated zone   Ponding	1.00
109F:		 		 		 	
Rousseau	55 	Very limited   Slope	  1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
Dawson	40     	Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	saturated zone	  1.00    1.00	Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
125B: Stutts	   65 	  Not limited	   	  Not limited	 	  Somewhat limited   Slope	0.12
Kalkaska	35	  Not limited		  Not limited	 	  Not limited	
125D: Stutts	     65 	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope	0.37	    Very limited   Slope	1.00
Kalkaska	   25 	  Somewhat limited   Slope	    0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
125E: Stutts	     55 	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00
Kalkaska	   45 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00
135B: Munising, calcareous substratum		Very limited Depth to saturated zone Depth to cemented pan	      1.00    0.99	Very limited Depth to saturated zone Depth to cemented pan	      1.00    0.99	Very limited Depth to saturated zone Depth to cemented pan Slope	        1.00      0.99    0.12
Ensley	   25     	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00

Table 10a.--Recreational Development--Continued

and soil name	Pct. of map unit			Picnic areas		Playgrounds	
		Rating class and	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
145C: Munising, dissected, very stony	:	      Verv limited	     	      Very limited	     	      Very limited	     
	     	· -	1.00	· -	1.00	Depth to saturated zone	  1.00    1.00
	   	pan	0.47	pan	  0.47 	Depth to cemented pan	0.99    0.47
Yalmer, dissected, very stony	     25	 	   	    Very limited	   	    Very limited	 
very scony	33	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	   	Depth to cemented   pan   Large stones	0.90    0.47	Depth to cemented   pan   Large stones	0.90    0.47	Slope Depth to cemented pan	1.00  0.90 
1460		 	 	 	 	Large stones	0.47
146B: Munising, stony	   60 	Depth to	    1.00	  Very limited   Depth to	    1.00	  Very limited   Depth to	    1.00
	   	saturated zone Depth to cemented pan	  0.99 	saturated zone   Depth to cemented   pan	  0.99 	saturated zone   Depth to cemented   pan	  0.99 
	 		   	 	   	Slope	0.12
Skanee, stony	30   	Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to   saturated zone	  1.00 
	   	Depth to cemented pan	1.00   	Depth to cemented pan	1.00   	Depth to cemented pan	1.00   
147A: Skanee, very stony	   55			  Very limited		  Very limited	j 
	   	Depth to   saturated zone   Depth to cemented	1.00    1.00	Depth to saturated zone Depth to cemented	1.00    1.00	Depth to   saturated zone   Depth to cemented	1.00    1.00
		pan	0.47	pan	0.47	pan	0.47
Gay, very stony	   35 	  Very limited   Depth to	    1.00	  Very limited   Depth to	    1.00	  Very limited   Depth to	    1.00
	 	saturated zone Ponding	1.00	saturated zone Ponding	1.00	saturated zone Ponding	1.00
148B:	   	Large stones   	0.47   	Large stones   	0.47   	Large stones   	0.47   
Shoepac	70   	Somewhat limited   Depth to   saturated zone	    0.98 	Somewhat limited   Depth to   saturated zone	    0.75 	Somewhat limited   Depth to   saturated zone	    0.98
	   		   		   	Slope	0.12
Ensley	20	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	  1.00	Very limited   Depth to   saturated zone	  1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas         		Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value 	Rating class and limiting features	Value
155A:	 	 	 	l I	l I	 	l I
Zeba, very stony	   55   	: -	  1.00    0.47	saturated zone	  1.00    0.47	Very limited   Depth to   saturated zone   Large stones	  1.00    0.47
	į		į		į	Gravel content	0.07
Jacobsville, very	   	 	   	    Very limited	   	    Very limited	   
scony	30   	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to   saturated zone   Ponding	1.00
157B:	 	 	 	 	 	 	l I
Reade	45   	Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
Nahma	   40 	Depth to saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00
	 	Organic matter content	1.00 	Organic matter content	1.00	Organic matter content	1.00
	   	Slow water movement Ponding	1.00    1.00	Slow water movement Ponding	1.00    1.00	Slow water   movement   Ponding	1.00    1.00
158C:	 	 	 				
Munising, dissected, stony	   50       		1.00	  Very limited   Depth to   saturated zone   Depth to cemented   pan	    1.00    0.99   	  Very limited   Depth to   saturated zone   Slope   Depth to cemented   pan	    1.00    1.00  0.99
Abbaye, dissected,							į
stony	35     		  1.00   	Very limited   Depth to   saturated zone 	  1.00   	Very limited   Depth to   saturated zone   Slope   Depth to bedrock	  1.00    1.00
1600	   	    -	   	 		Begen to Bearoux	
160B: Paquin	   55       	Depth to cemented pan		pan		  Very limited   Depth to cemented   pan   Depth to   saturated zone   Slope	  1.00    0.39    0.12
Finch	45 45		1.00	   Very limited   Depth to   saturated zone   Depth to cemented   pan	1.00	  Very limited	    1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas		Playgrounds	
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	Rating class and limiting features	Value
161B: Yellowdog, stony	     50 	    Not limited   	       	    Not limited 	       	  Somewhat limited   Depth to bedrock   Slope	      0.29  0.12
Buckroe, stony	   40   	  Very limited   Depth to bedrock   		  Very limited   Depth to bedrock   		  Very limited   Depth to bedrock   Slope	    1.00  0.12
165B: Chocolay, very stony	   55       	  Very limited   Depth to   saturated zone   Large stones	    1.00    0.47	  Very limited   Depth to   saturated zone   Large stones	    1.00    0.47 	Very limited   Depth to   saturated zone   Depth to bedrock   Large stones   Slope	  1.00    0.71  0.47  0.12
Waiska, very stony	   30   	  Somewhat limited   Large stones 	    0.47 	  Somewhat limited   Large stones   	    0.47 	  Somewhat limited   Large stones   Slope	    0.47  0.12
166: Skandia	   85     	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
167: Skandia, stony	   55     	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  -  1.00  -  1.00	   Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
Jacobsville, stony	   35     	  Very limited   Depth to   saturated zone   Ponding	  -  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
170B: Chocolay, very stony	   90         	  Very limited   Depth to   saturated zone   Large stones 	    1.00    0.47 	  Very limited   Depth to   saturated zone   Large stones	    1.00    0.47	   Very limited   Depth to   saturated zone   Depth to bedrock   Large stones   Slope	   1.00     0.71   0.47   0.12
171B: Paavola, very stony	   90         	Very limited Depth to saturated zone Depth to cemented pan Large stones	1.00	  Very limited   Depth to   saturated zone   Depth to cemented   pan   Large stones	1.00	  Very limited   Depth to   saturated zone   Depth to cemented   pan   Large stones   Slope	    1.00    0.54    0.47  0.12

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map	Camp areas		Picnic areas		Playgrounds	
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
172D: Buckroe, very bouldery	     70   	    Very limited   Slope   Depth to bedrock   Large stones	1.00	Depth to bedrock	1.00	    Very limited   Slope   Depth to bedrock   Large stones	      1.00  1.00  0.47
Rock outcrop	15	  Not rated	 	  Not rated	 	  Not rated	
172F: Buckroe, very bouldery	     70     	Very limited Slope Depth to bedrock Large stones	1.00	Depth to bedrock	1.00	Very limited Slope Depth to bedrock Large stones	      1.00  1.00  0.47
Rock outcrop	15	  Not rated	   	  Not rated		  Not rated	
176B: Croswell	     50   	  Somewhat limited   Depth to   saturated zone	      0.39 	  Somewhat limited   Depth to   saturated zone		  Somewhat limited   Depth to   saturated zone   Slope	    0.39    0.12
Kinross	   40     	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	saturated zone		   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
181E: Frohling, dissected, stony		Depth to cemented pan		 		 	      1.00  1.00
Tokiahok, dissected, stony		  Very limited   Slope   Depth to cemented   pan	1.00	  Very limited   Slope   Depth to cemented   pan	1.00	  Very limited   Slope   Depth to cemented   pan	    1.00  0.90
185B: McMaster	   90     	  Somewhat limited   Depth to   saturated zone	    0.39 	  Somewhat limited   Depth to   saturated zone	    0.19 	  Somewhat limited   Depth to   saturated zone	    0.39 
186B: Chatham, stony	   85 	  Not limited	 	  Not limited	 	  Somewhat limited   Slope	0.12
186D: Chatham, stony	     85 	    Somewhat limited   Slope 	      0.37	    Somewhat limited   Slope 	      0.37	    Very limited   Slope 	      1.00
187B: Reade	   85   	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		   Picnic areas   		   Playgrounds   	
		Rating class and limiting features	Value 	Rating class and   limiting features	Value 	Rating class and   limiting features	Value
188B: Eben, stony	     85   	  Somewhat limited   Large stones   Gravel content	      0.18  0.08		      0.18  0.08		    1.00  1.00  0.12
188D: Eben, stony	     90     	  Somewhat limited   Slope   Large stones   Gravel content	    0.37  0.18  0.08	  Somewhat limited   Slope   Large stones   Gravel content	    0.37  0.18  0.08	      Very limited	    1.00  1.00  1.00
188E: Eben, stony	   90     	  Very limited   Slope   Large stones   Gravel content	 	  Very limited   Slope   Large stones   Gravel content	  1.00  0.18  0.08	  Very limited   Slope   Large stones   Gravel content	  1.00  1.00  1.00
191B: Ruse	   50       	  Very limited   Depth to   saturated zone   Depth to bedrock   Ponding	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock   Ponding	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock   Ponding   Gravel content	  1.00    1.00  1.00  0.06
Ensign	   40   	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	1.00	saturated zone	  1.00    1.00
197B: Shoepac	     50   	  Somewhat limited   Depth to   saturated zone	      0.98 	  Somewhat limited   Depth to   saturated zone	      0.75 	  Somewhat limited   Depth to   saturated zone	      0.98 
Trenary	40	Not limited	 	Not limited	į Į	Somewhat limited   Slope	0.50
198B: Shoepac	   60 	  Somewhat limited   Depth to   saturated zone	      0.98	  Somewhat limited   Depth to   saturated zone	      0.75	  Somewhat limited   Depth to   saturated zone	0.98
Reade	   30     	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	  1.00 
200A: Charlevoix	   55       	   Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.15	  Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.15	  Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.15
Ensley	   30     	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	-		Picnic areas		Playgrounds	
		!	Value	Rating class and   limiting features	Value	Rating class and	Value
202B: Sauxhead, very stony	   85       		1.00	saturated zone Depth to bedrock	1.00	Very limited Depth to saturated zone Depth to bedrock Large stones Slope	    1.00    1.00  0.47  0.12
206B: Traunik	       90	    Not limited	     	      Not limited 	       	      Somewhat limited   Slope	        0.50
206D: Traunik	     90 	    Somewhat limited   Slope	      0.16	    Somewhat limited   Slope	      0.16	    Very limited   Slope	      1.00
211B: Munising	   55         		1.00	  Very limited   Depth to   saturated zone   Depth to cemented   pan	1.00	Very limited Depth to saturated zone Depth to cemented pan Slope	    1.00    0.99    0.12
Abbaye	   35     	  Very limited   Depth to   saturated zone 	    1.00   	  Very limited   Depth to   saturated zone 	    1.00   	   Very limited   Depth to   saturated zone   Depth to bedrock   Slope	  1.00    0.29  0.12
214B: Kalkaska	     60 	    Very limited   Too sandy 	      1.00	    Very limited   Too sandy 	      1.00	    Very limited   Too sandy   Slope	      1.00  0.12
Blue Lake	   30 	  Not limited 	   	  Not limited 	   	  Somewhat limited   Slope	    0.12
214D: Kalkaska	     55   	    Very limited   Too sandy   Slope	    1.00  0.37	  Very limited   Too sandy   Slope	1.00	  Very limited   Slope   Too sandy	      1.00  1.00
Blue Lake	35	  Somewhat limited   Slope	    0.37	  Somewhat limited   Slope	    0.37	  Very limited   Slope	1.00
214E: Kalkaska	     55   	  Very limited   Slope   Too sandy	    1.00  1.00	  Very limited   Too sandy   Slope	      1.00  1.00	  Very limited   Slope   Too sandy	      1.00  1.00
Blue Lake	35	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00
221B: Jeske	     40 		      1.00	  Very limited   Depth to   saturated zone	      1.00	Very limited Depth to saturated zone	      1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
221B:	 			 		 	
Au Train	30	  Very limited   Depth to	1.00	  Very limited   Depth to	1.00	Very limited   Depth to	1.00
	 	saturated zone		saturated zone	1.00	saturated zone	1.00
	j 	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Gongeau	20	  Verv limited		  Very limited		  Very limited	
congcuu	20	Depth to	1.00	: -	1.00	: -	1.00
		saturated zone	!	saturated zone	ļ	saturated zone	
	 	Depth to bedrock Ponding	1.00	Depth to bedrock   Ponding	1.00	Depth to bedrock   Ponding	1.00
225B:	 	 		 		 	
Cusino	95	Not limited		Not limited		Somewhat limited   Slope	0.12
225D:	 			 		 	
Cusino	95 	Somewhat limited   Slope	0.37	Somewhat limited   Slope	  0.37	Very limited   Slope	1.00
226B:	 	 		 		 	
Kalkaska	50	Very limited	1	Very limited		Very limited	
	 	Too sandy	1.00	Too sandy	1.00	Too sandy Slope	1.00
Cusino	   45 	  Not limited 	   	  Not limited 	   	  Somewhat limited   Slope	    0.12
226D:	į		į		į	_	į
Kalkaska	50	  Very limited		  Very limited		  Very limited	
		Too sandy	1.00	· -	1.00	:	1.00
	 	Slope	0.37	Slope	0.37	Too sandy	1.00
Cusino	45	  Somewhat limited		  Somewhat limited		  Very limited	
	 	Slope 	0.37	Slope 	0.37	Slope 	1.00
226E: Kalkaska	   50	Vory limited		    Very limited	į	    Very limited	į
Raikaska	30	Slope	1.00	Too sandy	1.00	Slope	1.00
	 	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Cusino	40	_	:	  Very limited	1	  Very limited	
	 	Slope 	1.00	Slope 	1.00	Slope 	1.00
226F: Kalkaska	50	Vory limited		  Very limited		  Very limited	İ
Raikaska	30	Slope	1.00	: -	1.00	: - <del>-</del>	1.00
		Too sandy	1.00	Slope	1.00	Too sandy	1.00
Cusino	35	_	1	  Very limited	1	  Very limited	
	 	Slope 	1.00	Slope 	1.00 	Slope 	1.00
227A: Halfaday	90	  Somewhat limited		  Somewhat limited		  Somewhat limited	
•	İ	Depth to	0.39	!	0.19	!	0.39
		saturated zone		saturated zone		saturated zone	

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas   		Picnic areas		Playgrounds   	
		Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
232B: Shelldrake	     90 	    Not limited   	     	    Not limited   		    Somewhat limited   Slope	      0.50
233B: Abbaye, very stony	   50         	  Very limited   Depth to   saturated zone   Large stones	    1.00    0.47 	  Very limited   Depth to   saturated zone   Large stones	  1.00    0.47	  Very limited   Depth to   saturated zone   Large stones   Depth to bedrock   Slope	  1.00    0.47  0.29  0.12
Zeba, very stony	   35     	Very limited   Depth to   saturated zone   Large stones	  1.00    0.47	Very limited   Depth to   saturated zone   Large stones	  1.00    0.47	Very limited   Depth to   saturated zone   Large stones   Gravel content	  1.00    0.47  0.07
234A: Levasseur, very stony	     55       	Slow water   movement	      1.00    1.00  1.00	Very limited   Depth to   saturated zone   Depth to bedrock   Slow water   movement	1.00	Very limited   Depth to   saturated zone   Depth to bedrock   Slow water   movement	1.00
Burt, very stony	   35         	Depth to saturated zone	0.47     1.00   1.00   1.00   0.47	Large stones  Very limited  Depth to saturated zone Depth to bedrock Ponding Large stones	0.47    1.00  1.00  1.00  0.47	Large stones    Very limited   Depth to   saturated zone   Depth to bedrock   Ponding   Large stones	0.47    1.00    1.00  1.00  0.47
235B:	 	 		 	 	 	
Sauxhead, very stony	60       	Very limited	  1.00    1.00  0.47	Very limited   Depth to   saturated zone   Depth to bedrock   Large stones	  1.00    1.00  0.47	Very limited   Depth to   saturated zone   Depth to bedrock   Large stones	  1.00    1.00  0.47
Burt, very stony	30         	Very limited   Depth to   saturated zone   Depth to bedrock   Ponding   Large stones	  1.00    1.00  1.00  0.47	Very limited   Depth to   saturated zone   Depth to bedrock   Ponding   Large stones	  1.00    1.00  1.00  0.47	Very limited   Depth to   saturated zone   Depth to bedrock   Ponding   Large stones	  1.00    1.00  1.00  0.47
236B: Waiska, extremely bouldery	       85   	    Very limited   Large stones 	        1.00	    Very limited   Large stones 	        1.00	    Very limited   Large stones   Slope	    1.00  0.12
236D: Waiska, extremely bouldery	     85   	  -  Very limited   Large stones   Slope	      1.00  0.16	  -  Very limited   Large stones   Slope	      1.00  0.16	  -  Very limited   Slope   Large stones	    1.00  1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	<u> </u>		Picnic areas		Playgrounds	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
237B: Chatham	     65 	    Not limited 	     	    Not limited 	     	    Somewhat limited   Slope	      0.12
Davies	   20     	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
239B: Longrie	     50 	    Not limited   	     	    Not limited   	       	    Somewhat limited   Slope   Depth to bedrock	    0.12  0.06
Shingleton	   40     	   Very limited   Slow water   movement   Depth to bedrock	  1.00    1.00	  Very limited   Slow water   movement   Depth to bedrock	  1.00    1.00	Very limited   Slow water   movement   Depth to bedrock   Slope	  1.00    1.00  0.12
240F: Trout Bay	     30     	Depth to   saturated zone   Organic matter   content	    1.00    1.00	  Very limited   Depth to   saturated zone   Organic matter   content	    1.00    1.00	  Very limited   Depth to   saturated zone   Organic matter   content	      1.00    1.00
Gongeau	       25   	Slope   Depth to bedrock	1.00      1.00	Slope   Depth to bedrock    Very limited   Depth to   saturated zone   Depth to bedrock	1.00      1.00	Slope   Depth to bedrock	1.00      1.00
Shingleton	   20     	  Very limited   Slope   Slow water   movement   Depth to bedrock	    1.00  1.00    1.00	Very limited Slope Slow water movement Depth to bedrock	    1.00  1.00    1.00	Slope    Very limited   Slope   Slow water   movement   Depth to bedrock	0.88    1.00  1.00 
Rock outcrop	15	  Not rated	   	  Not rated	   	  Not rated	
241: Cathro	   55       	  Very limited   Depth to   saturated zone   Organic matter   content   Ponding	    1.00    1.00 	  Very limited   Depth to   saturated zone   Organic matter   content   Ponding	    1.00    1.00    1.00	  Very limited   Depth to   saturated zone   Organic matter   content   Ponding	    1.00    1.00
Gay	   35     	į	į	  Very limited   Depth to   saturated zone   Ponding	į	  Very limited	  1.00    1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas   		Playgrounds   	
	unit	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
242B: Kalkaska, severely burned	       95 	    Very limited   Too sandy	        1.00	    Very limited   Too sandy	        1.00	    Very limited   Too sandy	        1.00
242D:	   	  -  -	   	 		Slope   	0.12
Kalkaska, severely burned	   95   	  Very limited   Too sandy   Slope	    1.00  0.37	  Very limited   Too sandy   Slope	  1.00  0.37	  Very limited   Slope   Too sandy	  1.00  1.00
242F: Kalkaska, severely burned	       90	    Very limited   Slope   Too sandy	      1.00  1.00	    Very limited   Too sandy   Slope	      1.00  1.00	  -  Very limited   Slope   Too sandy	      1.00
243: Markey	       95	-   		Slope      Very limited		100 sandy      Very limited	
•	   	Depth to saturated zone Ponding	1.00    1.00	: -	1.00	Depth to saturated zone Ponding	1.00
245B: Trout Bay	       40	      Very limited	 	      Very limited	   	      Very limited	 
	   	Depth to saturated zone Organic matter	1.00    1.00	Depth to saturated zone Organic matter	1.00    1.00	Depth to saturated zone Organic matter	1.00    1.00
	   	content Depth to bedrock Ponding	  1.00  1.00	content Depth to bedrock Ponding	1.00	content Depth to bedrock Ponding	  1.00  1.00
Lupton	   30   	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
Gongeau	   20 	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
	     	·	1.00	Depth to bedrock   Ponding	1.00	•	1.00
246B: Garlic	     90 	    Not limited 	     	    Not limited 		  -  Somewhat limited   Slope	0.12
246D: Garlic	     90 	  Somewhat limited   Slope	0.37	    Somewhat limited   Slope	0.37	    Very limited   Slope	1.00
246E: Garlic	     90 	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas		Playgrounds   	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
248B: Escanaba	     50 	    Not limited 	     	    Not limited 	     	    Somewhat limited   Slope	      0.12
Greylock	   40 	  Not limited 	   	  Not limited 	   	  Somewhat limited   Slope	0.12
248D: Escanaba	     50 	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope	      0.37	    Very limited   Slope	1.00
Greylock	40	  Somewhat limited   Slope	0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
248E: Escanaba	     50 	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00	    Very limited   Slope	1.00
Greylock	40	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
249B: Sauxhead	   55       	  Very limited   Depth to   saturated zone   Depth to bedrock   Large stones	    1.00    1.00  0.47	Very limited Depth to saturated zone Depth to bedrock Large stones	    1.00    1.00  0.47	  Very limited   Depth to   saturated zone   Depth to bedrock   Large stones	    1.00    1.00  0.47
Skandia	   35     	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
250B: Chocolay, extremely stony	     55         	  Very limited   Depth to   saturated zone   Large stones	      1.00    1.00	Very limited Depth to saturated zone Large stones	      1.00    1.00 	  Very limited   Depth to   saturated zone   Large stones   Depth to bedrock   Slope	      1.00    1.00  0.71  0.12
Jacobsville, extremely stony	   30     	  Very limited   Depth to   saturated zone   Large stones   Ponding	  1.00    1.00  1.00	  Very limited   Depth to   saturated zone   Large stones   Ponding	  1.00    1.00  1.00	saturated zone	  1.00    1.00  1.00
251B: Greylock	90	    Not limited 	   	    Not limited 	     	    Somewhat limited   Slope	0.12
251D: Greylock	     85 	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope 	      0.37	    Very limited   Slope	      1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	-		Picnic areas		Playgrounds	
	unit c   	!	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
252A: Finch	     50 	! <del>-</del>	      1.00	    Very limited   Depth to   saturated zone	      1.00	    Very limited   Depth to   saturated zone	      1.00
	   	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
Kinross	   40   	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	saturated zone	  1.00    1.00	   Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
254C: Kalkaska, dissected	     55 	    Very limited   Too sandy 	      1.00	    Very limited   Too sandy 	      1.00	    Very limited   Too sandy   Slope	      1.00  1.00
Blue Lake, dissected	   35 	  Not limited 	   	  Not limited 	   	  Very limited   Slope	    1.00
254E: Kalkaska, dissected	     55   	! <del>-</del>	      1.00	:	      1.00	    Very limited   Slope   Too sandy	      1.00
Blue Lake, dissected	   35 	  Very limited   Slope	1.00	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00
254F: Kalkaska, dissected	     55   	Slope	      1.00  1.00	:	      1.00  1.00	    Very limited   Slope   Too sandy	      1.00  1.00
Blue Lake, dissected	   35 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00
255D: Wallace	     95     	Very limited Depth to cemented pan Slope		Very limited Depth to cemented pan Slope	:	  Very limited   Depth to cemented   pan   Slope	      1.00    1.00
256B: Whitewash	     95 	    Not limited	     	    Not limited	     	    Not limited	     
266A: Spot	   50       	Depth to saturated zone Depth to cemented pan	1.00    1.00	saturated zone Depth to cemented pan	1.00    1.00	saturated zone Depth to cemented pan	į
Finch	     40   	  Very limited	1.00	  Very limited	1.00	Ponding    Very limited   Depth to   saturated zone   Depth to cemented   pan	1.00      1.00    1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas   		Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
267A: Finch	   85     	Very limited Depth to saturated zone Depth to cemented pan	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to cemented   pan	1.00	Very limited Depth to saturated zone Depth to cemented pan	    1.00    1.00
268C: Munising, calcareous substratum, dissected	İ		          1.00    0.99	  -  Very limited   Depth to   saturated zone   Depth to cemented   pan	1.00	saturated zone	        1.00    1.00  0.99
Frohling, calcareous substratum, dissected	į	  Somewhat limited   Depth to cemented   pan		    Somewhat limited   Depth to cemented   pan	:	  Very limited   Slope   Depth to cemented   pan	    1.00  0.90
Cookson, dissected	   20   	  Not limited   	     	  Not limited   	     	  Very limited   Slope   Depth to bedrock	    1.00  0.06
269E: Frohling, calcareous substratum, dissected	į	Very limited Slope Depth to cemented	1.00	      Very limited   Slope   Depth to cemented   pan	1.00	Very limited Slope Depth to cemented	          1.00  0.90
Garlic, dissected	20	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	1.00
Cookson, dissected	20	  Very limited   Slope 	    1.00	  Very limited   Slope 	    1.00	  Very limited   Slope   Depth to bedrock	    1.00  0.06
272C: Munising, calcareous substratum, dissected	İ	Very limited Depth to saturated zone Depth to cemented pan	1.00	saturated zone	1.00	    Very limited   Depth to   saturated zone	        1.00    1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit			Picnic areas		Playgrounds	
		· ————————————————————————————————————	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
272C: Yalmer, calcareous substratum, dissected	       30     		1.00	 	1.00	saturated zone	        1.00    1.00
Frohling, calcareous substratum, dissected	     20   	  Somewhat limited   Depth to cemented   pan	!	    Somewhat limited   Depth to cemented   pan 	:	Very limited Slope Depth to cemented pan	    1.00  0.90
275B: Munising, calcareous substratum	     50       		1.00	Very limited Depth to saturated zone Depth to cemented pan	1.00	saturated zone Depth to cemented pan	      1.00    0.95 
Cookson	   40   	  Not limited   	     	  Not limited   	     	  Somewhat limited   Slope   Depth to bedrock	    0.12  0.06
281E: Mongo, dissected	     95     	  Very limited   Slow water   movement   Slope	    1.00    1.00	  Very limited   Slow water   movement   Slope	    1.00    1.00	Very limited Slope Slow water movement	    1.00  1.00
282B: Furlong	   50 	  Not limited 	     	  Not limited 	     	  Somewhat limited   Depth to bedrock   Slope	    0.97  0.50
Shingleton	   40       	  Very limited   Slow water   movement   Depth to bedrock	1.00	  Very limited   Slow water   movement   Depth to bedrock 	1.00	  Very limited   Slow water   movement   Depth to bedrock   Slope	  1.00    1.00  0.12
282D: Furlong	   50   	  Somewhat limited   Slope	    0.37 	  Somewhat limited   Slope 	    0.37 	  Very limited   Slope   Depth to bedrock	    1.00  0.97
Shingleton	   40       	   Very limited   Slow water   movement   Depth to bedrock   Slope	1.00	  Very limited   Slow water   movement   Depth to bedrock   Slope	  1.00    1.00  0.37	  Very limited   Slope   Slow water   movement   Depth to bedrock	  1.00  1.00    1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas   		Playgrounds   	
	   		Value	Rating class and limiting features		Rating class and limiting features	Value
284B: Steuben	     40 	    Very limited   Depth to cemented   pan		    Very limited   Depth to cemented   pan	      0.99	pan	į
Blue Lake	     30	    Not limited	   	    Not limited	   	Slope    Somewhat limited	0.12   
Kalkaska	     20 	    Very limited   Too sandy 	      1.00	    Very limited   Too sandy 	      1.00	  Very limited   Too sandy	0.12        1.00  0.12
284D: Steuben	   40     	  Very limited   Depth to cemented   pan   Slope	!	pan		  Very limited   Slope   Depth to cemented   pan	      1.00  0.99
Blue Lake	   25 	  Somewhat limited   Slope	    0.37	  Somewhat limited   Slope	    0.37	  Very limited   Slope	1.00
Kalkaska	   25   	  Very limited   Too sandy   Slope	    1.00  0.37		    1.00  0.37	:	    1.00  1.00
284E: Steuben	     40   	  Very limited   Slope   Depth to cemented   pan	1.00	  Very limited   Slope   Depth to cemented   pan	1.00	  Very limited   Slope   Depth to cemented   pan	      1.00  0.99
Blue Lake	   30 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00
Kalkaska	   20   	  Very limited   Slope   Too sandy	    1.00  1.00		    1.00  1.00	:	    1.00  1.00
285B: Halfaday	   50 	Somewhat limited   Depth to   saturated zone	    0.39 	  Somewhat limited   Depth to   saturated zone	    0.19 	  Somewhat limited   Depth to   saturated zone	    0.39
Kinross	   40     	  Very limited   Depth to   saturated zone   Ponding	  -  1.00  -  1.00	  Very limited   Depth to   saturated zone   Ponding	  -  1.00    1.00	saturated zone	    1.00    1.00
286B: Greylock	     50 	    Not limited 	     	    Not limited 	     	    Somewhat limited   Slope	      0.12
Cookson	   40 	  Not limited   	     	  Not limited   	     	  Somewhat limited   Slope   Depth to bedrock	    0.12  0.06

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit			Picnic areas		Playgrounds	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
287B: McMaster	     55 	  Somewhat limited   Depth to   saturated zone	      0.39	    Somewhat limited   Depth to   saturated zone	      0.19	  Somewhat limited   Depth to   saturated zone	      0.39
Davies	   35     	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
290A: Namur, very stony	   50     	  Very limited   Depth to bedrock   Large stones	1	  Very limited   Depth to bedrock   Large stones		  Very limited   Depth to bedrock   Large stones   Gravel content	  1.00  0.76  0.22
Ruse, very stony	40           	   Very limited   Depth to   saturated zone   Depth to bedrock   Ponding   Large stones	  1.00    1.00  1.00  0.76	   Very limited   Depth to   saturated zone   Depth to bedrock   Ponding   Large stones	  1.00    1.00  1.00  0.76	Very limited   Depth to   saturated zone   Depth to bedrock   Ponding   Large stones   Gravel content	  1.00    1.00  1.00  0.76  0.06
292B: Mashek, sandy substratum	       90 	    Very limited   Depth to   saturated zone	        1.00	  Very limited   Depth to   saturated zone	        1.00	    Very limited   Depth to   saturated zone	      1.00
296D: Islandlake	     55 	    Somewhat limited   Slope	0.16	    Somewhat limited   Slope	      0.16	  Very limited   Slope	1.00
McMillan	   35 	  Somewhat limited   Slope	0.16	  Somewhat limited   Slope	0.16	  Very limited   Slope	1.00
296E: Islandlake	     55 	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00
McMillan	35	  Very limited   Slope	1.00	Very limited   Slope	1.00	  Very limited   Slope	1.00
297B: Rubicon, severely burned	       95     	  Very limited   Too sandy 	        1.00	    Very limited   Too sandy   	        1.00	  Very limited   Too sandy   Slope   Gravel content	    1.00  0.12  0.06
297D: Rubicon, severely burned	95   	  -  Very limited   Too sandy   Slope 	      1.00  0.26	 	      1.00  0.26	  Very limited   Slope   Too sandy   Gravel content	    1.00  1.00  0.06

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas		Playgrounds	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
298B: Wurtsmith	     55   	  Somewhat limited   Depth to   saturated zone	      0.39 	    Somewhat limited   Depth to   saturated zone	      0.19 	    Somewhat limited   Depth to   saturated zone   Slope	      0.39    0.12
Deford	   35     	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone	    1.00    1.00
299F: Shelldrake	     99 	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00
300F: Shelldrake	     61 	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00
Dune land	38	  Not rated 	   	  Not rated 	   	  Not rated 	   
301F: Cookson, dissected	     55 	  Very limited   Slope 	      1.00	  Very limited   Slope 	      1.00	  Very limited   Slope   Depth to bedrock	    1.00  0.06
Nykanen, dissected	   35     	  Very limited   Depth to   saturated zone   Slope   Depth to bedrock	  1.00    1.00	  Very limited   Slope   Depth to   saturated zone   Depth to bedrock	  1.00  1.00    1.00	Very limited Depth to saturated zone Slope Depth to bedrock	  1.00    1.00  1.00
302B: Dillingham	     45   	  Very limited   Depth to cemented   pan		  Very limited   Depth to cemented   pan 	      0.99   	  Somewhat limited   Depth to cemented   pan   Slope	      0.99    0.12
Kalkaska	   40 	  Very limited   Too sandy 	    1.00	  Very limited   Too sandy 	    1.00	  Very limited   Too sandy   Slope	    1.00  0.12
302D: Dillingham	     52   	  Very limited   Depth to cemented   pan   Slope		  Very limited   Depth to cemented   pan   Slope		  Very limited   Slope   Depth to cemented   pan	      1.00  0.99
Kalkaska	   45   	  Very limited   Too sandy   Slope	    1.00  0.37	  Very limited   Too sandy   Slope	    1.00  0.37		    1.00  1.00
302E: Dillingham	   50     	  Very limited   Slope   Depth to cemented   pan	1.00	  Very limited   Slope   Depth to cemented   pan 	1.00	  Very limited   Slope   Depth to cemented   pan 	      1.00  0.99 

Table 10a.--Recreational Development--Continued

	Pct. of map unit	- 		Picnic areas     		Playgrounds   	
	   	· ————————————————————————————————————	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
302E: Kalkaska	     40   	Slope	    1.00  1.00		    1.00  1.00	<u>-</u>	      1.00  1.00
302F: Dillingham	     50   	! <del>-</del>	1.00	:	1.00	  Very limited   Slope   Depth to cemented   pan	      1.00  0.99
Kalkaska	   40 	Slope	  1.00  1.00	•	    1.00  1.00	:	    1.00  1.00
303B: Kiva	     55 	    Not limited 	 	    Not limited 	     	    Somewhat limited   Slope	      0.12
Trenary	   30 	  Not limited 		  Not limited 	   	  Somewhat limited   Slope	    0.12
303D: Kiva	     55 	!	    0.16	    Somewhat limited   Slope	      0.16	    Very limited   Slope	      1.00
Trenary	   30 	  Somewhat limited   Slope	    0.16	  Somewhat limited   Slope	    0.16	  Very limited   Slope	    1.00
303E: Kiva	     55 	    Very limited   Slope	1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00
Trenary	   30 		1.00	  Very limited   Slope	    1.00	  Very limited   Slope	1
305B: Wurtsmith	     55   	  Somewhat limited   Depth to   saturated zone	0.39	  Somewhat limited   Depth to   saturated zone	      0.19 		      0.50  0.39
Meehan	   40 		1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00
306C: Deerton, dissected	     35 	    Not limited   		    Not limited   	       	    Very limited   Slope   Depth to bedrock	      1.00  0.84
Tokiahok, dissected	   30     	  Somewhat limited   Depth to cemented   pan   Slope		  Somewhat limited   Depth to cemented   pan   Slope		  Very limited   Slope   Depth to cemented   pan	    1.00  0.90

Table 10a.--Recreational Development--Continued

	Pct. of map unit			   Picnic areas   		   Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
306C: Jeske, dissected	   20     	  Very limited   Depth to   saturated zone	      1.00   	  Very limited   Depth to   saturated zone	      1.00   	  Very limited   Depth to   saturated zone   Depth to bedrock   Slope	    1.00    0.99  0.88
307B: Rubicon, very deep water table	       95 	    Not limited   	         	      Not limited   	         	    Somewhat limited   Slope 	        0.12
307D: Rubicon, very deep water table	     95 	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope 	      0.37	    Very limited   Slope	      1.00
308B: Rubicon	     55 	    Not limited 		    Not limited 		    Somewhat limited   Slope	0.12
Sultz	   40 	  Not limited 	   	  Not limited 		  Somewhat limited   Slope	0.12
308D: Rubicon	     55 	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope	0.37	    Very limited   Slope	1.00
Sultz	   40 	  Somewhat limited   Slope	    0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
309B: Rubicon, deep water table	       95 	    Not limited 	       	    Not limited 	       	    Somewhat limited   Slope	0.12
309D: Rubicon, deep water table	       95 	    Somewhat limited   Slope	        0.37	      Somewhat limited   Slope	0.37	    Very limited   Slope	1.00
310B: Kalkaska, burned	     90   	  Very limited   Too sandy 	    1.00	  Very limited   Too sandy 	    1.00 	  Very limited   Too sandy   Slope	  1.00  0.12
310D: Kalkaska, burned	     95   	  Very limited   Too sandy   Slope	      1.00  0.37	  Very limited   Too sandy   Slope	    1.00  0.37	  Very limited   Slope   Too sandy	    1.00  1.00
310E: Kalkaska, burned	     95   	  Very limited   Slope   Too sandy	      1.00  1.00	  Very limited   Too sandy   Slope	    1.00  1.00	  Very limited   Slope   Too sandy	    1.00  1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	   Camp areas   		Picnic areas		   Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
311B: Kalkaska, very deep water table, burned	       95 	    Very limited   Too sandy	        1.00	    Very limited   Too sandy	        1.00	    Very limited   Too sandy   Slope	      1.00  0.12
311D: Kalkaska, very deep water table, burned	       95   	  Very limited   Too sandy   Slope	        1.00  0.37	  Very limited   Too sandy   Slope	        1.00  0.37	  Very limited   Slope   Too sandy	      1.00  1.00
312B: Islandlake, burned	     95 	    Not limited 		    Not limited 		    Somewhat limited   Slope	0.12
312D: Islandlake, burned	     95 	    Somewhat limited   Slope	      0.16	    Somewhat limited   Slope	      0.16	    Very limited   Slope	1.00
313B: Kalkaska, deep water table, burned		    Very limited   Too sandy	        1.00	    Very limited   Too sandy	        1.00	    Very limited   Too sandy	1.00
314B: Blue Lake, very deep water table, burned	:	    Not limited 	       	    Not limited 	       	  Somewhat limited   Slope   Large stones	      0.12  0.01
315B: Blue Lake, deep water table, burned	       95   	    Not limited 	       	    Not limited 	       	    Somewhat limited   Slope   Large stones	      0.12  0.01
316B: Blue Lake, burned	     95 	  Not limited   	     	  Not limited   	     	  Somewhat limited   Slope   Large stones	    0.12  0.01
316D: Blue Lake, burned	     95   	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope	      0.37	    Very limited   Slope   Large stones	    1.00  0.01
317B: Kalkaska, very deep water table	       95 	    Very limited   Too sandy	        1.00	    Very limited   Too sandy	        1.00	    Very limited   Too sandy	      1.00
317D: Kalkaska, very deep water table	       95   	  Very limited   Too sandy   Slope	      1.00  0.37	    Very limited   Too sandy   Slope	      1.00  0.37	    Very limited   Slope   Too sandy	      1.00  1.00

Table 10a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas		Playgrounds     	
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
318B: Islandlake, very deep water table	       95	      Not limited	       	      Not limited		      Somewhat limited   Slope	0.12
318D: Islandlake, very deep water table	       95 	    Somewhat limited   Slope	        0.16	    Somewhat limited   Slope	      0.16	    Very limited   Slope	        1.00
319B: Islandlake	     95 	    Not limited 	     	    Not limited 		    Somewhat limited   Slope	      0.12
319D: Islandlake	     95 	    Somewhat limited   Slope	      0.16	    Somewhat limited   Slope	      0.16	    Very limited   Slope	
319E: Islandlake	     95 	  Very limited   Slope	      1.00	  Very limited   Slope	1.00	    Very limited   Slope	1.00
319F: Islandlake	     95 	  Very limited   Slope	1.00	    Very limited   Slope	1.00	    Very limited   Slope	1.00
320B: Kalkaska, deep water table		    Very limited   Too sandy	        1.00	    Very limited  Too sandy		    Very limited  Too sandy	1.00
321B: Kalkaska	     50 	  Very limited   Too sandy 	      1.00	  Very limited   Too sandy 	    1.00	  Very limited   Too sandy   Slope	  1.00  0.12
Deerton	   <b>4</b> 5   	  Not limited   	     	  Not limited   	     	  Somewhat limited   Depth to bedrock   Slope	  0.84  0.12
321D: Kalkaska	     50   	  Very limited   Too sandy   Slope	      1.00  0.37	  Very limited   Too sandy   Slope	    1.00  0.37	  Very limited   Slope   Too sandy	    1.00  1.00
Deerton	   45   	  Somewhat limited   Slope	    0.37 	  Somewhat limited   Slope	0.37	  Very limited   Slope   Depth to bedrock	  1.00  0.84

#### Table 10b. -- Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit		s	Golf fairways     	
	   	'	:	Rating class and limiting features	Value
10: Beaches	    100	    Not rated 	     	    Not rated 	
11C: Deer Park	90	  Not limited		  Somewhat limited   Droughty	0.85
11E: Deer Park	     95   	  Somewhat limited   Slope 	      0.08	  Very limited   Slope   Droughty	      1.00  0.85
11F: Deer Park	     98   	  Very limited   Slope 	      1.00	  Very limited   Slope   Droughty	      1.00  0.85
12B: Rubicon	     90 	    Not limited 	     	    Somewhat limited   Droughty	      0.93
12D: Rubicon	     95   	  Not limited 	       	  Somewhat limited   Droughty   Slope	0.93
12E: Rubicon	     95   	  Very limited   Slope	      1.00	  Very limited   Slope   Droughty	    1.00  0.93
13B: Kalkaska	   94 	  Very limited   Too sandy	    1.00	  Somewhat limited   Droughty   Too sandy	    0.87  0.50
13D: Kalkaska	   96     	  Very limited   Too sandy 	      1.00   	  Somewhat limited   Droughty   Too sandy   Slope	    0.87  0.50  0.37
13E: Kalkaska	  100     		    1.00  1.00		    1.00  0.87  0.50
15A: Croswell	   92     	  Not limited   	         	  Somewhat limited   Depth to   saturated zone   Droughty	  0.19    0.19

Table 10b.--Recreational Development--Continued

and soil name	of			Golf fairways	
	map				
	unit				
	İ	Rating class and	Value	Rating class and	Valu
		limiting features		limiting features	
L6A:	 	 		 	 
Paquin	90	  Not limited	i	  Very limited	İ
-	İ	İ	į	Depth to cemented	1.00
			į	pan	
				Droughty	1.00
				-	0.19
	 	l		saturated zone	 
.7A:					
Au Gres	92	Very limited		Very limited	
		Depth to	1.00	-	1.00
		saturated zone		saturated zone	
	 	 		Droughty 	0.80 
18:			į		į
Kinross	92		:	Very limited	
	 	Depth to	1.00	-	1.00
	 	saturated zone Ponding	1.00	saturated zone	  1.00
		Foliding			0.04
	į		į		į
19: Deford	   92	  Very limited		  Very limited	 
202024		Depth to	:	_	1.00
		saturated zone		saturated zone	i
	į	Ponding	1.00	Ponding	1.00
21A:	 	 			 
Ingalls	90	Very limited	į	Very limited	į
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
24B:		 			
Munising	90		:	Very limited	
		Depth to	1.00	-	1.00
		saturated zone		saturated zone	
	 	  -		Depth to cemented	0.99
	 	 		pan   Droughty	  0.95
	į		į		į
P5B: Munising	   55	  Verv limited		  Very limited	 
<b>.</b>		Depth to	1.00		1.00
	İ	saturated zone	į	saturated zone	İ
				Depth to cemented	0.99
				pan	
	 	[ [		Droughty	0.95 
Yalmer	30	  Very limited		  Very limited	
		Depth to	1.00	-	1.00
		saturated zone	ļ	saturated zone	
		[		Droughty Depth to cemented	1.00

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways	
	unit   	Rating class and   limiting features	Value	Rating class and   limiting features	Value
25D: Munising	   55     	  Very limited   Depth to   saturated zone 	      1.00   	  Very limited   Depth to   saturated zone   Depth to cemented   pan	    1.00    0.99
Yalmer	       30 	       Very limited   Depth to   saturated zone	        1.00	Slope    Very limited   Depth to   saturated zone	0.95  0.37      1.00 
	     		   	Droughty Depth to cemented pan Slope	!
31D: Trenary	     85 	    Not limited 	     	    Somewhat limited   Slope	      0.16
33: Ensley	     90   	  Very limited   Depth to   saturated zone   Ponding	:	saturated zone	      1.00 
35B: Munising, calcareous substratum		    Very limited   Depth to   saturated zone 	        1.00	  -   Very limited   Depth to   saturated zone   Depth to cemented   pan	      1.00    0.95
Yalmer, calcareous substratum	     30       	Very limited Depth to saturated zone	        1.00     	Droughty  Very limited  Depth to  saturated zone  Droughty  Depth to cemented  pan	0.13      1.00    0.97  0.64
Frohling, calcareous substratum		    Not limited   	       	  Somewhat limited   Depth to cemented   pan	      0.90
37B: Grand Sable	     90 	    Not limited   	       	    Somewhat limited   Droughty 	      0.05
37E: Grand Sable	98 98	  Very limited   Slope 	      1.00 	-	      1.00  0.05

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways   	
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value
38B: Rhody	     60 	    Very limited   Depth to	      1.00	    Very limited   Organic matter	      1.00
	     	saturated zone Ponding	  1.00   	content Depth to saturated zone Ponding	  1.00    1.00
Towes	     30 	    Very limited   Depth to	      1.00	Depth to bedrock    Very limited   Depth to	0.06        1.00
	   	saturated zone		saturated zone Depth to bedrock	0.80
40B: Waiska, very stony	     90 	    Somewhat limited   Large stones	      0.47	    Very limited   Droughty	      1.00
42: Davies	     90	    Very limited		    Very limited	   
	   	Depth to   saturated zone   Ponding	1.00    1.00	Depth to saturated zone Ponding	1.00    1.00
46: Jacobsville, very stony	         90   	  -  -   Very limited   Depth to   saturated zone   Ponding	        1.00	Droughty  -  -  Very limited   Depth to   saturated zone   Ponding	0.55          1.00    1.00
47C: Deerton	     	  -  -  Not limited	 	Depth to bedrock	0.06
peercon	33     		   	Depth to bedrock   Droughty   Slope	0.84  0.83  0.01
Au Train	   30     	  Very limited   Depth to   saturated zone 	  1.00     	  Very limited   Depth to   saturated zone   Droughty   Depth to bedrock	  1.00    1.00
47E: Deerton	     55	      Somewhat limited   Slope	      0.50	    Very limited   Slope	      1.00
	   	-   		Depth to bedrock Droughty	1
Au Train	   30     	  Very limited   Depth to   saturated zone	    1.00 	saturated zone Droughty	  1.00    1.00
	 	 		Depth to bedrock	1.00

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map	 	s	Golf fairways   	
	unit   	Rating class and   limiting features	Value	   Rating class and   limiting features	Value
48: Burt	     90     	Very limited Depth to saturated zone Ponding	    1.00    1.00	Very limited Depth to saturated zone Droughty Depth to bedrock	    1.00    1.00
49B: Cookson	       90	      Not limited 	     	Ponding           Somewhat limited   Depth to bedrock	1.00          0.06
51: Nahma	     50         	  Very limited   Depth to   saturated zone   Organic matter   content   Ponding	    1.00    1.00 	  Very limited   Organic matter   content   Depth to   saturated zone   Ponding   Depth to bedrock	    1.00    1.00
Ruse	   40       	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00 	Very limited Depth to saturated zone Depth to bedrock Ponding Droughty	  1.00    1.00  1.00  0.93
52B: Summerville	     85   	  Not limited   	       	  Very limited   Depth to bedrock   Droughty	      1.00  0.93
57: Carbondale	   30       	  Very limited   Depth to   saturated zone   Organic matter   content   Ponding	  1.00    1.00 	   Very limited   Organic matter   content   Depth to   saturated zone   Ponding	  1.00    1.00    1.00
Lupton	   30   	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
Tawas	   30         	Very limited   Depth to   saturated zone   Organic matter   content   Ponding	  1.00    1.00    1.00	content	  1.00    1.00    1.00
58: Dawson	   30     	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit		s	Golf fairways   	
	dilic	Rating class and limiting features	Value	Rating class and   limiting features	Value
58: Greenwood	     30 	    Very limited   Depth to   saturated zone	      1.00	    Very limited   Organic matter   content	      1.00
	   	Organic matter content Ponding	1.00	Depth to saturated zone Ponding	1.00    1.00
Loxley	   30   	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
59: Chippeny	     55 	    Very limited   Depth to	      1.00	    Very limited   Organic matter	      1.00
	       	saturated zone Organic matter content Ponding	  1.00    1.00	content Depth to saturated zone Ponding Depth to bedrock	  1.00    1.00  0.65
Nahma	   30       	   Very limited   Depth to   saturated zone   Organic matter   content   Ponding	  1.00    1.00    1.00		  1.00    1.00    1.00
60: Histosols	     50     	 	      1.00    1.00	Depth to Dedicok	        1.00  1.00    1.00
Aquents	     50   	Ponding	1.00      1.00    1.00	saturated zone    Very limited   Ponding   Depth to	      1.00  1.00
61: Pits	    100	    Not rated		    Not rated	   
62F: Udipsamments	     50 	    Not rated 		    Not rated 	     
Udorthents64B:	50   	Not rated   	 	  Not rated   	 
Kiva	90   	Not limited 		Somewhat limited   Droughty	0.32
64D: Kiva	   90   	  Not limited     	     	  Somewhat limited   Droughty   Slope 	  0.32  0.16

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map	Paths and	trails	3	Golf fairways   	
	unit   	Rating class			   Rating class and   limiting features	Value
65D: Jeske, bedrock terrace	     45       	  Very limited   Depth to   saturated : 	zone	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock   Droughty	      1.00    0.99  0.94
Gongeau, bedrock terrace	   25       	  Very limited   Depth to   saturated :	zone     	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock   Droughty	  1.00    1.00  0.54
Deerton, bedrock terrace	   20     	  Not limited     			  Somewhat limited   Depth to bedrock   Slope   Droughty	  0.84  0.84  0.83
65F: Jeske, bedrock terrace	     45     	  Very limited   Depth to   saturated :	zone	1.00	   Very limited   Depth to   saturated zone   Depth to bedrock   Droughty	    1.00    0.99  0.94
Gongeau, bedrock terrace	   25       	  Very limited   Depth to   saturated : 	zone         	1.00	   Very limited   Depth to   saturated zone   Depth to bedrock   Droughty	    1.00    1.00  0.54
Deerton, bedrock terrace	20	  Very limited   Slope   	       	1.00	  Very limited   Slope   Depth to bedrock   Droughty	  1.00  0.84  0.83
66D: Ruse, bedrock terrace	   40         	  Very limited   Depth to   saturated : 	             	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock   Droughty	    1.00    1.00  0.48
Ensign, bedrock terrace	30   30     	  Very limited   Depth to   saturated :		1.00	  Very limited   Depth to   saturated zone   Depth to bedrock   Droughty	  1.00    1.00  0.70

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of	Paths and trail	s	Golf fairways	
	map  unit				
		Rating class and limiting features	Value	Rating class and limiting features	Value
66D:	 	 			
Nykanen, bedrock					
terrace	20	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone		saturated zone	
	į	Water erosion	1.00	Depth to bedrock	1.00
		 		Droughty   Slope	0.90
	į				
66F: Ruse, bedrock	 	 			
terrace	40	  Very limited		  Very limited	i
	ĺ	Depth to	1.00	· -	1.00
		saturated zone		saturated zone	
	 	 		Depth to bedrock Droughty	0.72
			i		
Ensign, bedrock					
terrace	30	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone		saturated zone	1.00
	İ	İ	i	Depth to bedrock	1.00
		l		Droughty	0.70
Nykanen, bedrock					
terrace	20	Very limited	:	Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00		1.00
	İ	Water erosion	1.00	-	1.00
	 	 		Droughty 	0.90
68:		<u> </u>	į		į
Pits, quarry	100	Not rated 		Not rated 	
69B: Escanaba		Not limited		Not limited	
ESCANADA	65	 		 	
71A: Evart	   70	  Very limited		  Very limited	
Eval C	70	Depth to	1.00	Flooding	1.00
	į	saturated zone	į	Depth to	1.00
		Ponding	1.00		
	 	Flooding 	0.40	Ponding	1.00
Sturgeon	20	  Very limited		  Very limited	
	!	Depth to	1.00		1.00
	 	saturated zone	0.40	Depth to saturated zone	1.00
72E:				Town limited	
Deerton, dissected	4±0 	Somewhat limited   Slope	0.82	Very limited   Slope	1.00
				Depth to bedrock	
	I	I	1	Droughty	0.83

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
72E: Tokiahok, dissected	   30     	  Somewhat limited   Slope 	      0.82     	Very limited Slope Droughty Depth to cemented pan	    1.00  0.95  0.90
Trout Bay, dissected	   15           	   Very limited   Depth to   saturated zone   Organic matter   content   Slope	  1.00    1.00    0.02	content Depth to saturated zone Slope	  1.00    1.00    1.00  1.00
72F: Deerton, dissected	   40   	  Very limited   Slope 	    1.00   	Very limited Slope Depth to bedrock Droughty	  1.00  0.84  0.83
Tokiahok, dissected	   25     	  Very limited   Slope 	    1.00   	Very limited Slope Droughty Depth to cemented pan	  1.00  0.95  0.90
Trout Bay, dissected	   20           	   Very limited   Depth to   saturated zone   Organic matter   content   Slope	  1.00    1.00    0.50	Organic matter content Depth to saturated zone	  1.00  1.00    1.00    1.00
76C: Garlic, dissected	   40 	  Not limited 		Somewhat limited Droughty	    0.74
Blue Lake, dissected	30	  Not limited 		Somewhat limited Droughty	0.23
Voelker, dissected	   20     	  Not limited   	       	Very limited  Depth to cemented  pan  Droughty	  -  1.00    1.00
76E: Garlic, dissected	     40 	  Somewhat limited   Slope 	      0.82	Very limited Slope Droughty	      1.00  0.74
Blue Lake, dissected	   30   	  Somewhat limited   Slope 	    0.82 	Very limited Slope Droughty	    1.00  0.23

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map	!	s	Golf fairways   	
	unit	İ		i	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
76E:	 				 
Voelker, dissected	20	Somewhat limited	j	Very limited	į
		Slope	0.82	-	1.00
	 	 		pan   Droughty	  1.00
	į				1.00
76F:	 				 
Garlic, dissected	40	  Very limited	i	  Very limited	İ
		Slope	1.00	-	1.00
	 	 		Droughty	0.74
Blue Lake, dissected	30	  Very limited		  Very limited	
	İ	Slope	1.00	Slope	1.00
				Droughty	0.23
Voelker, dissected	   20	  Very limited		  Very limited	 
	İ	Slope	1.00	_	1.00
				pan	
	 	l			1.00  1.00
				Diougney	
77B:					ļ
Garlic	40 	Not limited		Somewhat limited   Droughty	  0.74
				Diougney	
Blue Lake	30	Not limited	İ	Somewhat limited	ĺ
		l		Droughty	0.23
Voelker	20	Not limited		  Very limited	 
	ĺ	İ	İ	Depth to cemented	1.00
		l		pan	
	 	 		Droughty 	1.00 
77D:			İ		
Garlic	40 	Not limited		Somewhat limited   Droughty	  0.74
					0.16
					ļ
Blue Lake	30	Not limited		Somewhat limited   Droughty	  0.23
					0.16
Voelker	20 	Not limited		Very limited   Depth to cemented	  1 00
				pan pan	
			[		1.00
	 	 		Slope	0.16
77E:		 			
Garlic	40	Very limited		Very limited	
		Slope	1.00	-	1.00
	 	 		Droughty 	0.74 
Blue Lake	30	  Very limited		  Very limited	
		Slope	1.00	-	1.00
				Droughty	0.23

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways	
	unit   	Rating class and limiting features	Value	Rating class and   limiting features	Value
77E: Voelker	   20       	  Very limited   Slope   	      1.00     	-	    1.00    1.00  1.00
88: Cathro	   55       	  Very limited   Depth to   saturated zone   Organic matter   content	    1.00    1.00	content	    1.00    1.00
Ensley	     35   	Ponding    Very limited   Depth to   saturated zone   Ponding	1.00      1.00    1.00	  Very limited   Depth to   saturated zone	1.00      1.00    1.00
93: Tawas	     70       	  Very limited   Depth to   saturated zone   Organic matter   content   Ponding	    1.00    1.00	content Depth to saturated zone	    1.00    1.00 
Deford	   20     	  Very limited   Depth to   saturated zone   Ponding		  Very limited   Depth to   saturated zone	    1.00    1.00
95B: Liminga	     90 	  Not limited	   	  Somewhat limited   Droughty	    0.25
104C: Fence, dissected	     90   	  Somewhat limited   Depth to   saturated zone	      0.44 	  Somewhat limited   Depth to   saturated zone	      0.75   
109D: Rousseau	   50   	  Not limited   	     		    0.84  0.37
Dawson	   <b>4</b> 5     	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	saturated zone	    1.00    1.00
109F: Rousseau	   55   	  Very limited   Slope 	    1.00 	-	    1.00  0.84

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways   	
	unit   	   Rating class and   limiting features	:	   Rating class and   limiting features	Value
109F: Dawson	     40     	    Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	saturated zone	    1.00    1.00
125B: Stutts	     65 	    Not limited 		    Somewhat limited   Droughty	      0.01
Kalkaska	   35 	  Not limited   		  Somewhat limited   Droughty 	    0.72 
125D: Stutts	   65   	  Not limited   	     		    0.37  0.01
Kalkaska	   25   	  Not limited   			    0.72  0.37
125E: Stutts	     55   	    Very limited   Slope 	      1.00		      1.00  0.01
Kalkaska	   45   	  Very limited   Slope 	    1.00		    1.00  0.72
135B: Munising, calcareous substratum	:	  Very limited   Depth to   saturated zone 	        1.00     	saturated zone Depth to cemented pan	      1.00    0.99 
Ensley	   25     	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	saturated zone	    1.00    1.00
145C: Munising, dissected, very stony		Very limited Depth to saturated zone Large stones	      1.00    0.47   	saturated zone	      1.00    0.99    0.95

Table 10b.--Recreational Development--Continued

and soil name	Pct. of map unit	 		Golf fairways     	
		Rating class and limiting features		Rating class and   limiting features	Value
145C: Yalmer, dissected, very stony	     35       	 	      1.00    0.47   	  Very limited   Depth to   saturated zone   Droughty   Depth to cemented   pan	      1.00    1.00  0.90
146B: Munising, stony	   60       	  Very limited   Depth to   saturated zone   	  1.00     	saturated zone Depth to cemented pan	  1.00    0.99 
Skanee, stony	   30       	   Very limited   Depth to   saturated zone 	  1.00     	pan Depth to saturated zone	  1.00    1.00    1.00
147A: Skanee, very stony	   55         	  Very limited   Depth to   saturated zone   Large stones	    1.00    0.47 	pan	    1.00    1.00 
Gay, very stony	   35       	Very limited Depth to saturated zone Ponding Large stones	  1.00    1.00  0.47	   Depth to   saturated zone   Ponding	    1.00    1.00
148B: Shoepac	     70 	  Somewhat limited   Depth to   saturated zone	      0.44	  Somewhat limited   Depth to   saturated zone	      0.75
Ensley	   20     	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	saturated zone	    1.00    1.00
155A: Zeba, very stony	   55       	  Very limited   Depth to   saturated zone   Large stones	    1.00    0.47	saturated zone	    1.00    0.32  0.20

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map			Golf fairways   		
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	
155A:		 		 	 	
Jacobsville, very stony	30	  Very limited	l I	  Very limited	l I	
BCONY	30	Depth to	1.00		1.00	
		saturated zone	İ	saturated zone	İ	
	İ	Ponding	1.00	Ponding	1.00	
				Depth to bedrock	0.06	
1 F 7 D .		  -				
157B: Reade	   45	  Very limited	l I	  Very limited	l I	
Redde	13	Depth to	1.00	: -	1.00	
		saturated zone	İ	saturated zone		
	İ		ĺ	Depth to bedrock	0.65	
				Droughty	0.04	
Nahma	1 40	 		 	 	
Naiillia	40	Very limited   Depth to	1.00	Very limited   Organic matter	1.00	
		saturated zone		content		
	İ	Organic matter	1.00	Depth to	1.00	
		content		saturated zone		
		Ponding	1.00		1.00	
	l I	 		Depth to bedrock	0.46	
158C:	 	 	1	 	 	
Munising, dissected,			İ			
stony	50	Very limited	ĺ	Very limited	ĺ	
		Depth to	1.00		1.00	
		saturated zone		saturated zone		
	 	 	1	Depth to cemented pan	0.99 	
		 		: - <del>-</del>	0.95	
	į		į		į	
Abbaye, dissected,				[		
stony	35		1	Very limited		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	
		sacuraced zone		Depth to bedrock	0.29	
	İ		İ			
160B:				[		
Paquin	55	Not limited		Very limited		
		 	1	Depth to cemented pan	1.00	
		 	i i		1.00	
			İ		0.19	
				saturated zone		
Bi		 		 		
Finch	45	Very limited	1	Very limited	  1 00	
	 	Depth to saturated zone	1.00	Depth to cemented pan	 	
					1.00	
		i contract of the contract of	1			
				saturated zone		

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map	Paths and trail	s	Golf fairways   	
	unit	Rating class and	Value	   Rating class and	Value
	<u> </u>	limiting features	<u> </u>	limiting features	<u> </u>
161B: Yellowdog, stony	     50 	    Not limited   	       	    Very limited   Droughty   Depth to bedrock	      1.00  0.29
Buckroe, stony	   40     	  Not limited     	       	  Very limited   Droughty   Depth to bedrock	    1.00  1.00
165B: Chocolay, very stony	   55       	  Very limited   Depth to   saturated zone   Large stones	  1.00    0.47	   Very limited   Depth to   saturated zone   Droughty   Depth to bedrock	  1.00    1.00  0.71
Waiska, very stony	   30   	  Somewhat limited   Large stones 	0.47	  Very limited   Droughty 	1.00
166: Skandia	   85       	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	saturated zone Ponding	  1.00    1.00  0.80
167: Skandia, stony	   55       	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding   Depth to bedrock	  1.00    1.00  0.80
Jacobsville, stony	   35         	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00 	   Very limited   Depth to   saturated zone   Ponding   Depth to bedrock	  1.00    1.00  0.06
170B: Chocolay, very stony	   90       	  Very limited   Depth to   saturated zone   Large stones	  1.00    0.47	  Very limited   Depth to   saturated zone   Droughty   Depth to bedrock	  1.00    1.00  0.71
171B: Paavola, very stony	   90         	  Very limited   Depth to   saturated zone   Large stones	    1.00    0.47	  Very limited   Depth to   saturated zone   Droughty   Depth to cemented   pan	    1.00    1.00  0.54

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map	Paths and trails		Golf fairways   	
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
172D: Buckroe, very bouldery	     70     	    Somewhat limited   Large stones 	          0.47	Very limited Droughty Depth to bedrock	      1.00  1.00
Rock outcrop	15	Not rated		  Not rated	
172F: Buckroe, very bouldery	     70   	  Very limited   Slope   Large stones	        1.00  0.47	:	      1.00  1.00
Rock outcrop	15	  Not rated		  Not rated	
176B: Croswell	     50   	  Not limited   	         	  Somewhat limited   Depth to   saturated zone   Droughty	      0.19    0.19
Kinross	   40       	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	saturated zone Ponding	  1.00    1.00  0.04
181E: Frohling, dissected, stony	:	    Somewhat limited   Slope   	        0.82	pan   Slope	      1.00    1.00
Tokiahok, dissected, stony		  Somewhat limited   Slope   	      0.82     	Very limited Slope Droughty Depth to cemented	    1.00  0.95  0.90
185B: McMaster	90   90     	  Not limited  -  -	         		    0.69  0.19 
186B: Chatham, stony	   85	    Not limited	<u> </u> 	  Not limited	 
186D: Chatham, stony	     85   	    Not limited 	       	    Somewhat limited   Slope	      0.37

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit		s	Golf fairways     	
		Rating class and limiting features	Value	Rating class and   limiting features	Value
187B: Reade	   85       	  Very limited   Depth to   saturated zone	      1.00     	Very limited Depth to saturated zone Depth to bedrock Droughty	    1.00    0.65  0.04
188B: Eben, stony	   85     	  Somewhat limited   Large stones 	    0.18   	  Very limited   Large stones   Droughty   Gravel content	  1.00  0.89  0.08
188D: Eben, stony	   90       	  Somewhat limited   Large stones   	    0.18     	   Very limited   Large stones   Droughty   Slope   Gravel content	  1.00  0.89  0.37  0.08
188E: Eben, stony	   90     	  Very limited   Slope   Large stones 	    1.00  0.18 	  Very limited   Slope   Large stones   Droughty   Gravel content	  1.00  1.00  0.89  0.08
191B: Ruse	     50       	  Very limited   Depth to   saturated zone   Ponding 	      1.00    1.00	  Very limited   Depth to   saturated zone   Depth to bedrock   Ponding   Droughty	    1.00    1.00  1.00  0.93
Ensign	   40     	  Very limited   Depth to   saturated zone	    1.00   	Very limited   Depth to   saturated zone   Depth to bedrock   Droughty	  1.00    1.00  0.77
197B: Shoepac	     50   	  Somewhat limited   Depth to   saturated zone	    0.44	  Somewhat limited   Depth to   saturated zone	      0.75
Trenary	40	  Not limited		  Not limited	
198B: Shoepac	     60 	  Somewhat limited   Depth to   saturated zone	      0.44	  Somewhat limited   Depth to   saturated zone	      0.75
Reade	   30       	Very limited Depth to saturated zone	•	   Very limited   Depth to   saturated zone   Depth to bedrock   Droughty	  1.00    0.65  0.04

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map	!	s	Golf fairways	
	unit   	·	Value	Rating class and limiting features	Value
200A: Charlevoix	     55 		      1.00	Very limited Depth to saturated zone	      1.00
Ensley	   30   	Depth to saturated zone	    1.00    1.00	saturated zone	    1.00    1.00
202B: Sauxhead, very stony	   85       	Depth to saturated zone	    1.00    0.47	saturated zone	    1.00    1.00  1.00
206B: Traunik	     90 	  Not limited 	     	Somewhat limited Droughty	      0.80
206D: Traunik	     90   	  Not limited  -	       		    0.80  0.16
211B: Munising	   55       	  Very limited   Depth to   saturated zone 		saturated zone Depth to cemented pan	  1.00    0.99 
Abbaye	   35   		    1.00   	Very limited  Depth to  saturated zone  Depth to bedrock	    1.00    0.29
214B: Kalkaska	     60 	  Very limited   Too sandy	    1.00		      0.87  0.50
Blue Lake	   30 	  Not limited   	     	  Somewhat limited   Droughty	    0.23
214D: Kalkaska	     55   	  Very limited   Too sandy 	    1.00 	Too sandy	    0.87  0.50  0.37
Blue Lake	   35   	  Not limited   	     	-	    0.37  0.23

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways   	ı
	unit   	'	Value	   Rating class and   limiting features	Value
214E: Kalkaska	     55   	-	      1.00  1.00		    1.00  0.87  0.50
Blue Lake	   35   	  Very limited   Slope 	    1.00 	  Very limited   Slope   Droughty	  1.00  0.23
221B: Jeske	   40     	  Very limited   Depth to   saturated zone 	    1.00   	  Very limited   Depth to   saturated zone   Depth to bedrock   Droughty	  1.00    0.99  0.94
Au Train	   30       	  Very limited   Depth to   saturated zone 	    1.00     	   Very limited   Depth to   saturated zone   Droughty   Depth to bedrock	  1.00    1.00  1.00
Gongeau	20         	   Very limited   Depth to   saturated zone   Ponding 	  1.00    1.00 	Very limited   Depth to   saturated zone   Depth to bedrock   Ponding   Droughty	  1.00    1.00  1.00  0.54
225B: Cusino	   95 	  Not limited 	     	  Somewhat limited   Droughty	0.92
225D: Cusino	     95   	  Not limited   	       	  Somewhat limited   Droughty   Slope	0.92
226B: Kalkaska	   50   	  Very limited   Too sandy	    1.00	  Somewhat limited   Droughty   Too sandy	0.87
Cusino	   45 	  Not limited   	     	  Somewhat limited   Droughty	0.92
226D: Kalkaska	50	  Very limited   Too sandy 	    1.00 	  Somewhat limited   Droughty   Too sandy   Slope	  0.87  0.50  0.37
Cusino	   45   	  Not limited   	     	  Somewhat limited   Droughty   Slope	  0.92  0.37

Table 10b.--Recreational Development--Continued

and soil name   m	Pct. of map	of   up		Golf fairways   		
	unit   	   Rating class and   limiting features		   Rating class and   limiting features	Value	
226E: Kalkaska	   50	  Very limited		  Very limited		
		Too sandy	1.00	_	1.00	
	İ	Slope	1.00	Droughty	0.87	
	ĺ		İ	Too sandy	0.50	
G						
Cusino	4±0 	Very limited   Slope	1.00	Very limited   Slope	1.00	
		blope		Droughty	0.92	
	İ	İ	į		j	
226F:						
Kalkaska	50	Very limited	:	Very limited	11 00	
	 	Slope	1.00		1.00	
	 	Too sandy	1	Droughty Too sandy	0.50	
			i			
Cusino	35	Very limited	į	Very limited	İ	
		Slope	1.00	Slope	1.00	
				Droughty	0.92	
227A:	 	 		 		
Halfaday	90	  Not limited		  Somewhat limited		
-	İ		İ	Depth to	0.19	
	ĺ		j	saturated zone	ĺ	
				Droughty	0.17	
232B:	 	İ		 		
Shelldrake	90	Not limited		  Somewhat limited		
	İ	İ	į	Droughty	0.98	
233B: Abbaye, very stony		  Vorm limited		  Very limited		
Abbaye, very scony	30	Depth to	1.00	_	1.00	
		saturated zone		saturated zone		
	İ	Large stones	0.47	Depth to bedrock	0.29	
Zeba, very stony	35	: -	:	Very limited		
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	
	 	Large stones	0.47	Large stones	0.32	
	İ			Depth to bedrock		
		[				
234A:						
Levasseur, very stony	   55	  Very limited		  Very limited	I	
beeny	33	Depth to	1.00	_	1.00	
		saturated zone		saturated zone	i	
	İ	Large stones	0.47	Droughty	1.00	
				Depth to bedrock	1.00	
Burt ware store	2=	   Worn limited		  Vorus limited	1	
Burt, very stony	35 	Very limited   Depth to	1.00	Very limited   Depth to	1.00	
	! 	saturated zone		saturated zone		
		Ponding	1.00	Droughty	1.00	
	<u></u>	Large stones	0.47	Depth to bedrock		
		 I	i	Ponding	1.00	

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways   	
	unit   	Rating class and limiting features	Value	Rating class and   limiting features	Value
235B: Sauxhead, very stony	     60     	Very limited Depth to saturated zone Large stones	    1.00    0.47	  Very limited   Depth to   saturated zone   Droughty   Depth to bedrock	    1.00    1.00  1.00
Burt, very stony	   30       	   Very limited   Depth to   saturated zone   Ponding   Large stones	  1.00    1.00  0.47	saturated zone	  1.00    1.00  1.00
236B: Waiska, extremely bouldery	       85 	    Very limited   Large stones	        1.00	      Very limited   Droughty	        1.00
236D: Waiska, extremely bouldery	       85 	    Very limited   Large stones	        1.00	  Very limited   Droughty   Slope	        1.00  0.16
237B: Chatham	     65	    Not limited		    Not limited	
Davies	   20     	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	   Very limited   Depth to   saturated zone   Ponding   Droughty	  1.00    1.00  0.55
239B: Longrie	     50	    Not limited 	     	    Somewhat limited   Depth to bedrock	      0.06
Shingleton	   40     	  Not limited     	     	Very limited Droughty Depth to bedrock	  1.00  1.00
240F: Trout Bay	   30         	Very limited   Depth to   saturated zone   Organic matter   content   Slope	  1.00    1.00    0.02	Very limited   Organic matter   content   Depth to   saturated zone   Depth to bedrock   Slope	  1.00    1.00    1.00  1.00
Gongeau	   25     	  Very limited   Depth to   saturated zone	  1.00     	   Very limited   Depth to   saturated zone   Depth to bedrock   Droughty	  1.00    1.00  0.54

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of	Paths and trail	s	Golf fairways 	
	map				
	unit	'	1 ** - 1		1
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
240F: Shingleton	   20	  Verv limited		  Very limited	
biiiigiccoii	20	Slope	1.00	_	1.00
				Droughty	1.00
		1		Depth to bedrock	1.00
Rock outcrop	   15	  Not rated 		Not rated	
241:	 	 			
Cathro	55	  Very limited	i	Very limited	i
	İ	Depth to	1.00	Organic matter	1.00
		saturated zone		content	
		Organic matter	1.00		1.00
		content		saturated zone	
	 	Ponding	1.00	Ponding	1.00
Gay	35	  Very limited		  Very limited	i
-	İ	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
	 	Ponding	1.00	Ponding	1.00
242B:	 	 			
Kalkaska, severely	İ	İ	į		i
burned	95	Very limited		Somewhat limited	
		Too sandy	1.00		0.87
	 	 		Too sandy	0.50
242D:		 			
Kalkaska, severely	İ	İ	į		İ
burned	95	! <del>-</del>		Somewhat limited	
		Too sandy	1.00	Droughty	0.87
	 	 		Too sandy   Slope	0.50
	 	 		Siope	
242F:	İ	İ	į	İ	İ
Kalkaska, severely					!
burned	90	Very limited		Very limited	
	 	Slope Too sandy	1.00	Slope   Droughty	1.00
		100 Sandy		Too sandy	0.50
	İ		i		
243:					
Markey	95	Very limited		Very limited	1 00
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
	İ	İ	į		İ
245B:					
Trout Bay	40	Very limited		Very limited	11 00
	 	Depth to saturated zone	1.00	Organic matter content	1.00
		Organic matter	1.00		1.00
	İ	content	į	saturated zone	i
		Ponding	1.00	Depth to bedrock	
	 	 		Ponding	1.00
Lupton	30	  Very limited		  Very limited	
<b>a</b>	, - <b>-</b>	Depth to	1.00	_	1.00
		saturated zone		saturated zone	
			1.00	Ponding	1.00

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map	Paths and trail	s	Golf fairways   	
	unit	'		   Rating class and   limiting features	Value
245B: Gongeau	   20       	 	      1.00    1.00	  Very limited   Depth to   saturated zone	    1.00    1.00  1.00  0.54
246B: Garlic	90	    Not limited	     	  Somewhat limited   Droughty	
246D: Garlic	     90 	  Not limited 	       	  Somewhat limited   Droughty   Slope	      0.74  0.37
246E: Garlic	     90   	  Very limited   Slope	      1.00	  Very limited   Slope   Droughty	      1.00  0.74
248B: Escanaba	     50	    Not limited	   	    Not limited	
Greylock	40	  Not limited		  Not limited	
248D: Escanaba	     50	  Not limited	   	  Somewhat limited   Slope	0.37
Greylock	   40 	  Not limited 		  Somewhat limited   Slope	0.37
248E: Escanaba	     50 	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00
Greylock	40	  Very limited   Slope	1.00	  Very limited   Slope	1.00
249B: Sauxhead	   55       	  Very limited   Depth to   saturated zone   Large stones	    1.00    0.47	  Very limited   Depth to   saturated zone   Droughty   Depth to bedrock	    1.00    1.00  1.00
Skandia	   35       	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00 	   Very limited   Depth to   saturated zone   Ponding   Depth to bedrock	  1.00    1.00  0.80

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways	
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value
250B: Chocolay, extremely stony	       55   	 	      1.00    1.00	saturated zone Droughty	        1.00    1.00
Jacobsville, extremely stony	     30     	  -  Very limited   Depth to   saturated zone   Large stones   Ponding	      1.00    1.00	saturated zone Ponding	      1.00    1.00
251B: Greylock	     90	    Not limited	   	    Not limited	     
251D: Greylock	     85 	    Not limited 		  Somewhat limited   Slope	      0.37
252A: Finch	     50     	  Very limited   Depth to   saturated zone	      1.00     	pan Depth to saturated zone	    1.00    1.00 
Kinross	   40     	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00  0.04
254C: Kalkaska, dissected	     55   	    Very limited   Too sandy 	      1.00		      0.87  0.50
Blue Lake, dissected	   35 	  Not limited 	   	  Somewhat limited   Droughty	    0.23
254E: Kalkaska, dissected	     55   	  Very limited   Too sandy   Slope	    1.00  0.82	Droughty	    1.00  0.87  0.50
Blue Lake, dissected	   35 	  Somewhat limited   Slope 	    0.82 	-	    1.00  0.23
254F: Kalkaska, dissected	     55     	    Very limited   Too sandy   Slope 	      1.00  1.00	Droughty	    1.00  0.87  0.50

Table 10b.--Recreational Development--Continued

	Pct. of map	of		Golf fairways	
		Rating class and limiting features	'	Rating class and   limiting features	Value
254F: Blue Lake, dissected	     35   	  Very limited   Slope 	    1.00		      1.00  0.23
255D: Wallace	   95       	  Not limited     			    1.00    1.00  0.01
256B: Whitewash	     95 	  Not limited   		  Somewhat limited   Droughty 	    0.01
266A: Spot	   50         	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00 	pan Depth to saturated zone Droughty	  1.00    1.00    1.00  1.00
Finch	   40         	  Very limited   Depth to   saturated zone   	  1.00     	pan Depth to saturated zone	  1.00    1.00    1.00
267A: Finch	   85       	  Very limited   Depth to   saturated zone 	  1.00   	pan Depth to saturated zone	  1.00    1.00    1.00
268C: Munising, calcareous substratum, dissected	ĺ	Very limited Depth to saturated zone	      1.00   	saturated zone Depth to cemented pan	        1.00    0.99 
Frohling, calcareous substratum, dissected	İ	      Not limited   	       	    Somewhat limited   Depth to cemented   pan	        0.90
Cookson, dissected	   20 	  Not limited 		  Somewhat limited   Depth to bedrock	    0.06

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways   	
	unit   	'	Value	   Rating class and   limiting features	Value
269E: Frohling, calcareous substratum, dissected	į	!	          0.82	  -  Very limited   Slope   Depth to cemented   pan	          1.00  0.90
Garlic, dissected	   20 		    0.82 		    1.00  0.74
Cookson, dissected	   20 	  Somewhat limited   Slope	    0.82 	  Very limited   Slope   Depth to bedrock	    1.00  0.06
272C: Munising, calcareous substratum, dissected	į	  -  Very limited   Depth to   saturated zone	          1.00     	saturated zone Depth to cemented pan	        1.00    0.99    0.34
Yalmer, calcareous substratum, dissected	     30       	_	      1.00     	saturated zone	      1.00    0.97  0.64
Frohling, calcareous substratum, dissected	İ	    Not limited   	         	  -  Somewhat limited   Depth to cemented   pan	        0.90
275B: Munising, calcareous substratum		-	      1.00     	saturated zone Depth to cemented pan	    1.00    0.95    0.13
Cookson	   40 	  Not limited	   	  Somewhat limited   Depth to bedrock	    0.06
281E: Mongo, dissected	     95 	    Very limited   Slope	      1.00	    Very limited   Slope 	      1.00

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways	
	unit	!	177-1	   Dation	177-1
	 	Rating class and   limiting features	value	Rating class and limiting features	Value 
282B:		 			
Furlong	50	Not limited		Very limited   Droughty	  1.00
				Depth to bedrock	
					ļ
Shingleton	40	Not limited		Very limited	  1.00
	 	 		Droughty Depth to bedrock	!
	į	İ	İ		İ
282D:		 		 	
Furlong	50	NOT limited		Very limited   Droughty	1.00
			i	Depth to bedrock	
	į		į	_	0.37
Shingleton	   40	  Not limited		  Very limited	 
biiiigiccoii	10			_	1.00
	į		į	Depth to bedrock	
				Slope	0.37
284B:	 	 	 		 
Steuben	40	Not limited	į	Very limited	İ
				Depth to cemented	0.99
				pan	
	 	 		Droughty 	0.57 
Blue Lake	30	Not limited	į	Somewhat limited	İ
				Droughty	0.23
Kalkaska	20	  Very limited		  Somewhat limited	 
	į	Too sandy	1.00	Droughty	0.87
				Too sandy	0.50
284D:		 			 
Steuben	40	Not limited	į	Very limited	İ
				Depth to cemented	0.99
		  -		pan Droughty	  0.57
					0.37
	į		į	· -	İ
Blue Lake	25	Not limited		Somewhat limited	
	 	 		Slope   Droughty	0.37
			İ		
Kalkaska	25	Very limited	'	Somewhat limited	
		Too sandy	1.00		0.87
		 		Too sandy   Slope	0.50
	İ				
284E:				 	
Steuben	4±0 	Very limited   Slope	1.00	Very limited   Slope	  1.00
				Depth to cemented	
	İ		İ	pan	İ
		 		Droughty	0.57
Blue Lake	30	  Very limited		  Very limited	 
	i	Slope	1.00	_	1.00
	1			-	

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map	Paths and trail	s	Golf fairways   	
	unit   	   Rating class and   limiting features		   Rating class and   limiting features	Value
284E: Kalkaska	     20	    Very limited		Very limited	
	     	Too sandy   Slope 	1.00  1.00 	Slope   Droughty   Too sandy	1.00  0.87  0.50
285B: Halfaday	     50	    Not limited		    Somewhat limited   Depth to	      0.19
		   		saturated zone Droughty	0.17
Kinross	   40       	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding   Droughty	  1.00    1.00  0.04
286B: Greylock	     50	    Not limited	   	Not limited	 
Cookson	   40 	  Not limited 		  Somewhat limited   Depth to bedrock	    0.06
287B: McMaster	     55   	  Not limited     	       	  Somewhat limited   Droughty   Depth to   saturated zone	      0.69  0.19
Davies	   35       	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	   Very limited   Depth to   saturated zone   Ponding   Droughty	  1.00    1.00  0.55
290A: Namur, very stony	     50 	    Somewhat limited   Large stones 	      0.76	    Very limited   Depth to bedrock   Droughty	      1.00
Ruse, very stony	   40       	  Very limited   Depth to   saturated zone   Ponding   Large stones	  1.00    1.00  0.76	saturated zone	  1.00    1.00  1.00  0.93
292B:  Mashek, sandy  substratum	       90   	  -  Very limited   Depth to   saturated zone	        1.00	      Very limited	          1.00

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways   	
	unit   	Rating class and limiting features		   Rating class and   limiting features	Value
296D: Islandlake	     55 	    Not limited   	     	  Somewhat limited   Droughty   Slope	      0.20  0.16
McMillan	   35   	  Not limited   	     	  Somewhat limited   Droughty   Slope	  0.20  0.16
296E: Islandlake	     55   	    Very limited   Slope 	      1.00	    Very limited   Slope   Droughty	      1.00  0.60
McMillan	   35 	  Very limited   Slope 	    1.00 	  Very limited   Slope   Droughty	    1.00  0.20
297B: Rubicon, severely burned	       95 	  Very limited   Too sandy	        1.00	  Somewhat limited   Droughty   Too sandy	        0.90  0.50
297D: Rubicon, severely burned	       95   	    Very limited   Too sandy 	        1.00	    Somewhat limited   Droughty   Too sandy   Slope	      0.90  0.50  0.26
298B: Wurtsmith	     55   	  Not limited   	       	    Somewhat limited   Droughty   Depth to   saturated zone	      0.90  0.19
Deford	   35   	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	Very limited Depth to saturated zone Ponding	    1.00    1.00
299F: Shelldrake	     99 	    Very limited   Slope 	      1.00	    Very limited   Slope   Droughty	      1.00  0.98
300F: Shelldrake	     61 	    Very limited   Slope	      1.00	    Very limited   Slope   Droughty	      1.00  0.98
Dune land	   38	  Not rated		  Not rated	
301F: Cookson, dissected	     55   	    Very limited   Slope 	      1.00 	  Very limited   Slope   Depth to bedrock	      1.00  0.06

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct.	Paths and trail	s	Golf fairways	
	map				
	unit	'	1		l
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
301F:	 				 
Nykanen, dissected	35	Very limited	į	Very limited	İ
		Depth to	1.00	Slope	1.00
		saturated zone		-	1.00
		Water erosion	1.00		
	 	Slope 	1.00 	-	0.90
302B:	 	 		]	 
Dillingham	45	  Not limited		  Very limited	! 
3 '			i	Depth to cemented	0.99
	İ	İ	į	pan	İ
	 	 	İ	Droughty	0.69
Kalkaska	40	  Very limited		  Somewhat limited	! 
	İ	Too sandy	1.00	Droughty	0.87
	 	 		Too sandy	0.50
302D:					
Dillingham	52	Not limited		Very limited	
	 	 		Depth to cemented pan	0.99 
	! 		i	-	0.98
	İ	 	į	Slope	0.37
Kalkaska	   45	  Very limited		  Somewhat limited	 
		Too sandy	1.00		0.87
				Too sandy	0.50
	 			Slope 	0.37 
302E:		  -	į	Vor. limited	
Dillingham	50 	Slope	1.00	Very limited   Slope	1.00
	! 	blope		Depth to cemented	
			İ	pan	
			į	-	0.98
Kalkaska	   40	  Very limited		  Very limited	 
		Too sandy	1.00	Slope	1.00
		Slope	1.00		0.87
	 	 		Too sandy	0.50
302F:	50	Vorus limited	İ	Voru limited	
Dillingham	50 	very limited   Slope	1.00	Very limited   Slope	1.00
	 	   probe		Depth to cemented	
	! 			pan	
			į		0.98
Kalkaska	40	  Very limited		  Very limited	 
		Slope	1.00		1.00
	 	Too sandy	1.00		0.87
303B:	   EF	  Not limited		  Comowhat limit:	 
Kiva	55 	NOT limited		Somewhat limited   Droughty	  0.32
			!		ļ
Trenary		Not limited	1	Not limited	1

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map		s	Golf fairways   	
	unit   	'	:	   Rating class and   limiting features	Value
303D: Kiva	     55 	    Not limited 	       		    0.32  0.16
Trenary	30	  Not limited 		  Somewhat limited   Slope	    0.16
303E: Kiva	     55 	-	      1.00	-	      1.00  0.32
Trenary	30	-	    1.00	  Very limited   Slope	    1.00
305B: Wurtsmith	   55     	  Not limited 	         		      0.90  0.19 
Meehan	   40   	  Very limited   Depth to   saturated zone	    1.00 	saturated zone	    1.00    0.93
306C: Deerton, dissected	     35 	  Not limited   	     	  Somewhat limited   Depth to bedrock   Droughty	      0.84  0.83
Tokiahok, dissected	   30     	  Not limited   	         	Depth to cemented pan	  0.95  0.90    0.16
Jeske, dissected	   20     	-	    1.00   	saturated zone Depth to bedrock	  1.00    0.99  0.94
307B: Rubicon, very deep water table	       95 	  -  Not limited  -	       	    Somewhat limited   Droughty	        0.93
307D: Rubicon, very deep water table	       95 	      Not limited   	       		      0.93  0.37

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit		s	Golf fairways   		
		Rating class and limiting features	Value	Rating class and   limiting features	Value	
308B: Rubicon	     55 	    Not limited 	     	    Somewhat limited   Droughty	      0.93	
Sultz	40	  Not limited 		Somewhat limited   Droughty	0.86	
308D: Rubicon	     55   	  Not limited   	       	  Somewhat limited   Droughty   Slope	    0.93  0.37	
Sultz	   40   	  Not limited   		  Somewhat limited   Droughty   Slope	0.86	
309B: Rubicon, deep water table	       95 	    Not limited	       	    Somewhat limited   Droughty		
309D: Rubicon, deep water table	       95   	    Not limited	         	  -  Somewhat limited   Droughty   Slope	      0.93  0.37	
310B: Kalkaska, burned	     90 	  Very limited   Too sandy	    1.00	  Somewhat limited   Droughty   Too sandy	    0.87  0.50	
310D: Kalkaska, burned	     95     	  Very limited   Too sandy 	      1.00 	  Somewhat limited   Droughty   Too sandy   Slope	    0.87  0.50  0.37	
310E: Kalkaska, burned	     95     	  Very limited   Too sandy   Slope	    1.00  1.00	  Very limited   Slope   Droughty   Too sandy	    1.00  0.87  0.50	
311B: Kalkaska, very deep water table, burned	     95   	  Very limited   Too sandy	      1.00	  Somewhat limited   Droughty   Too sandy	      0.87  0.50	
311D: Kalkaska, very deep water table, burned	       95     	    Very limited   Too sandy 	      1.00	    Somewhat limited   Droughty   Too sandy   Slope	      0.87  0.50  0.37	
312B: Islandlake, burned	     95 	    Not limited   	       	    Somewhat limited   Droughty 	      0.60	

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct.	Paths and trail	Golf fairways				
	map						
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value		
312D: Islandlake, burned	     95 	    Not limited   		  Somewhat limited   Droughty   Slope	    0.60  0.16		
313B: Kalkaska, deep water table, burned		  -  Very limited   Too sandy  -	      1.00	    Somewhat limited   Droughty   Too sandy	        0.87  0.50		
314B: Blue Lake, very deep water table, burned	'	    Not limited 		  Somewhat limited   Droughty   Large stones	      0.13  0.01		
315B: Blue Lake, deep water table, burned	     95 	    Not limited 		  Somewhat limited   Droughty   Large stones	0.13		
316B: Blue Lake, burned	     95   	  Not limited     		  Somewhat limited   Droughty   Large stones	0.13		
316D: Blue Lake, burned	   95   	  Not limited   		Somewhat limited   Slope   Droughty   Large stones	  0.37  0.13  0.01		
317B: Kalkaska, very deep water table	       95   	    Very limited   Too sandy 	        1.00	    Somewhat limited   Droughty   Too sandy	      0.87  0.50		
317D: Kalkaska, very deep water table	     95   	    Very limited   Too sandy   	      1.00 	   Somewhat limited   Droughty   Too sandy   Slope	    0.87  0.50  0.37		
318B: Islandlake, very deep water table	     95 	      Not limited   		    Somewhat limited   Droughty	      0.60		
318D: Islandlake, very deep water table	     95 	    Not limited   	     	    Somewhat limited   Droughty   Slope	    0.20  0.16		

Table 10b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit		s	Golf fairways   	
	 	Rating class and limiting features		Rating class and limiting features	Value
	<u> </u> 	IIMICING TEACUTES	<u> </u>	IIMICING TEACUTES	<u> </u>
319B: Islandlake	     95   	  Not limited 	     	  Somewhat limited   Droughty	    0.60
319D: Islandlake	   95 	  Not limited 	     	  Somewhat limited   Droughty   Slope	    0.60  0.16
319E: Islandlake	     95 	  Very limited   Slope	      1.00	  Very limited   Slope   Droughty	      1.00  0.60
319F: Islandlake	     95   	  Very limited   Slope	      1.00	  Very limited   Slope   Droughty	      1.00  0.20
320B: Kalkaska, deep water table		    Very limited   Too sandy	        1.00	    Somewhat limited   Droughty   Too sandy	        0.87
321B: Kalkaska	     50 	  Very limited   Too sandy	      1.00	  Somewhat limited   Droughty   Too sandy	    0.87  0.50
Deerton	   <b>4</b> 5   	  Not limited   	       	  Somewhat limited   Depth to bedrock   Droughty	  0.84  0.83
321D: Kalkaska	   50   	  Very limited   Too sandy 	    1.00 	  Somewhat limited   Droughty   Too sandy   Slope	  0.87  0.50  0.37
Deerton	   45     	  Not limited   	       	  Somewhat limited   Depth to bedrock   Droughty   Slope	  0.84  0.83  0.37

## Table 11.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

	1	Pe	otential	for habita	at elemen	ts		Potentia	l as habi	tat for
Map symbol			Wild					İ		
and soil name	Grain	Grasses	herba-	Hardwood trees	Conif-	Wetland	Shallow   water		  Woodland  wildlife	
	crops	legumes	plants	<u> </u>	plants		areas			
	ļ		<u> </u>	ļ	<u> </u>			ļ		
10. Beaches		 	 		 				 	 
11C:	 	 	 	 	 		 	 	 	 
Deer Park	Very   poor.	  Poor 	  Poor 	  Fair 	  Fair 	Very   poor.	Very   poor.	  Poor 	  Fair 	  Very   poor.
11E:	i	 			! 					! 
Deer Park	Very   poor.	Poor	Poor 	Fair 	  Fair 	Very   poor.	Very   poor.	Poor	  Fair 	Very   poor.
11F:	i İ	 	 		 				 	 
Deer Park	Very   poor.	Poor 	Poor   	  Fair 	  Fair 	Very   poor.	Very   poor.	Poor 	  Fair 	Very   poor.
12B:	İ	! 		İ	! 			İ		
Rubicon	Poor   	Poor 	Fair   	Fair   	Fair   	Very   poor.	Very   poor. 	Poor   	Fair   	Very   poor. 
12D:	İ		İ	İ		İ		İ		
Rubicon	Poor 	Poor 	Fair   	Fair   	Fair   	Very   poor.	Very   poor.	Poor   	Fair   	Very   poor.
12E:	İ	! 			! 				! 	! 
Rubicon	Very   poor.	Poor 	Fair   	Fair   	Fair   	Very   poor.	Very   poor.	Poor   	Fair   	Very   poor.
13B:	İ	 							 	
Kalkaska	Fair 	Fair 	Fair 	Good 	Good 	Very   poor.	Very   poor.	Fair 	Good 	Very   poor.
13D:	 	 	 	 	 			 	 	 
Kalkaska	Poor	Fair	Fair	Good	Good	Very   poor.	Very poor.	Fair	Good	Very poor.
13E:	 	 	 	 	 			 	 	 
Kalkaska	Very   poor.	Poor	  Fair 	Good	Good	Very   poor.	Very   poor.	Poor	  Good 	Very   poor.
15A:	ì	 	! 		 				 	 
Croswell	Poor	Poor	  Fair 	Fair	  Fair 	Poor	Very   poor.	Poor	  Fair 	Very   poor.
16A:	Ì	 	! 		 				 	 
Paquin	Poor	Poor	Fair 	Fair 	Fair 	Poor	Very   poor.	Poor	Fair 	Very   poor.
17A:	I I	 	 	 	! 			 	 	 
Au Gres	Poor	  Fair 	  Good 	  Good 	  Good 	Poor	Fair	  Fair 	  Good 	Poor.
18: Kinross	  Very	  Poor	  Poor	  Fair	  Fair	  Good	  Good	  Very	  Fair	Good.
	poor.	   	 	 	   	<u> </u> 	į I	poor.	   	 
19:										
Deford	Very   poor. 	Poor   	Fair   	Fair   	Fair   	Good   	Good   	Poor   	Fair   	Good.   
	1		1	1	1	1	1	1		1

Table 11.--Wildlife Habitat--Continued

		P	otential	for habit	at elemen	t.g		Potentia	l as habi	tat for
Map symbol	 		Wild						45 11451	
and soil name	Grain and seed crops	Grasses and legumes	herba- ceous plants	Hardwood   trees	Conif-   erous   plants	Wetland   plants	Shallow   water   areas	: -	Woodland  wildlife	:
21A:	 	 	 		 		 	 	 	 
Ingalls	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
24B:	 	 			 		 			 
Munising	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
25B:	İ	İ			İ	İ	İ			İ
Munising	Good	Good	Good	Good	Good	Poor	Poor	Good	Good 	Poor.
Yalmer	Poor	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
25D:										 
Munising	Fair 	Good	Good	Good	Good	Very   poor.	Very   poor.	Good	Good	Very poor.
	İ	<u>.</u>				į -	į	<u>.</u>		
Yalmer	Poor	Fair 	Good	Good 	Good 	Very   poor.	Very   poor.	Fair 	Good 	Very   poor.
31D:					 					  -
Trenary	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
	 	 	 		 	poor.	poor.	 	 	poor. 
33: Ensley	170	Poor	Fair	  Fair	Fair	Good	Good	Poor	Fair	Good.
Elisiey	poor.									
35B:	 	 	 		 	 	 	 	 	 
Munising	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Yalmer	  Fair	  Fair	  Fair	  Good	  Good	  Poor	  Poor	  Fair	  Good	Poor.
Frohling	  Good	  Good	  Good	Good	  Good	  Poor	  Very	  Good	  Good	  Very
	İ	į	İ	į	İ	į	poor.	į	İ	poor.
37B:										
Grand Sable	Poor	Fair 	Good 	Good 	Good 	Poor	Poor	Fair 	Good 	Poor.
37E: Grand Sable	Voru	Fair	Good	Good	Good	  Very	Very	  Fair	Good	Very
Grand Sabie	poor.					poor.	poor.			poor.
38B:			 		 	 	 	 	 	 
Rhody	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
	į									
Towes	Fair 	Fair 	Fair 	Good	Good 	Fair 	Fair 	Fair 	Good 	Fair. 
40B:		 	 					 	   	
Waiska	poor.	Poor	Fair 	Good 	Good	Very   poor.	Very   poor.	Poor	Good	Very   poor.
42:	 	 	 		 	 	 	 	 	 
Davies	_	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
	poor.	 			 		 	 	 	 
46: Jacobsville	  Verv	  Poor	  Fair	  Fair	  Fair	  Good	  Fair	  Poor	  Fair	Fair.
	poor.									
	I	I	1		I	I	I	I	1	I

Table 11.--Wildlife Habitat--Continued

		P	otential	for habita	at elemen	ts		Potentia	l as habit	tat for
Map symbol			Wild				1	I		
and soil name	Grain	Grasses	herba-	Hardwood	Conif-	Wetland	Shallow	Openland	Woodland	Wetland
	and seed	and	ceous	trees	erous	plants	water	wildlife	wildlife	wildlife
	crops	legumes	plants		plants		areas			
48.0										
47C: Deerton	Poor	  Poor	  Poor	Poor	  Poor	  Very	  Very	  Poor	  Poor	  Very
Deel con	FOOT	FOOT	FOOT		FOOI	poor.	poor.	FOOT	FOOT	poor.
	! 									
Au Train	Very	Poor	Fair	Fair	Fair	Poor	Very	Poor	Fair	Very
	poor.						poor.			poor.
47E: Deerton	Poor	  Poor	  Poor	Poor	  Poor	  Very	  Very	  Poor	  Poor	   170 mr
Deel con	FOOT				FOOI	poor.	poor.			Very   poor.
		İ		İ					İ	
Au Train	Very	Poor	Fair	Fair	Fair	Poor	Very	Poor	Fair	Very
	poor.						poor.			poor.
4.0										
48: Burt	Poor	  Poor	  Fair	Poor	  Fair	  Fair	  Fair	  Poor	  Poor	Poor.
Bult			Fair		<b>Faii</b> 	Faii	Fair			1001.
49B:	İ	i İ	į	j	İ		į	į	İ	
Cookson	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
			!							
51:	 	 			 				 	
Nahma	very   poor.	Poor	Poor	Poor	Fair	Good	Good	Poor	Poor	Good.
	poor.	 			 		 		 	 
Ruse	Poor	Poor	Fair	Poor	Fair	Good	Poor	Poor	Fair	Fair.
			ĺ			İ	ĺ	ĺ		
52B:			!							
Summerville	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
57:	 	 	 	 	 	 	 	 	l I	 
Carbondale	Very	Poor	Poor	Poor	Poor	Good	Good	Very	Poor	Good.
	poor.	İ	j	İ	İ	İ	j	poor.	İ	
Lupton		Poor	Poor	Poor	Poor	Good	Good	Very	Poor	Good.
	poor.				 			poor.	 	 
Tawas	  Verv	Poor	  Poor	Poor	  Poor	Good	Good	  Very	  Poor	Good.
Tunus	poor.							poor.		
	į	İ	į	j	j	į	İ	į -	j	İ
58:										
Dawson		Very	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
	poor.	poor.	 	l I	 		 	 	l I	 
Greenwood	Very	Very	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
	poor.	poor.	j	İ	İ	İ	j	j	İ	
Loxley		Very	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
	poor.	poor.			 				 	 
59:	 	 	 		 	 		 	 	 
Chippeny	Very	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
	poor.		ĺ			İ	ĺ	ĺ		
Nahma	: -	Poor	Poor	Poor	Fair	Good	Good	Poor	Poor	Good.
	poor.	[ 	 	 	 			 	 	 
60:							i			
Histosols	Very	Very	Very	Very	Very	Good	Good	Very	Very	Good.
	poor.	poor.	poor.	poor.	poor.		ļ	poor.	poor.	
		 			 		  a		 	
Aquents	: -	Very	Very	Very	Very	Good	Good	Very	Very	Good.
	poor.	poor.	poor.	poor.	poor.	1	 	poor.	poor.	 
	I	I	I	I	I	I	I	I	I	l

Table 11.--Wildlife Habitat--Continued

Grain and seed crops	Grasses	Wild   herba-	for habita    Hardwood		I		İ	l as habit	tat for
and seed		!	Hardwood		!	!	l		
i	legumes	ceous plants	trees	Conif-   erous   plants	Wetland   plants 	Shallow   water   areas	. –	Woodland  wildlife 	
			İ		į	į	İ		
Fair	Good	  Good 	Good	Good	Poor	Poor	  Good 	  Good 	Poor.
į		İ	İ		į	į	į	İ	İ
Fair	Fair	Fair	Good	Good	Poor	Poor	Good	Good	Very poor.
 	P		 				 	 	
Poor	Poor	Fair   	Poor 	Fair   	very   poor.	Very   poor.	Poor 	Poor 	Very   poor.
Very	Poor	  Fair 	  Poor 	  Fair 	  Poor 	  Poor 	  Poor 	  Poor 	Poor.
Poor	Poor	  Poor 	  Poor 	  Poor 	  Very   poor.	  Very   poor.	  Poor 	  Poor 	  Very   poor.
i		 		 			 	 	
Poor	Poor	  Fair 	Poor	Fair	Very   poor.	Very   poor.	Poor	Poor	Very poor.
Very poor.	Poor	  Fair 	  Poor 	  Fair 	  Poor 	  Poor 	  Poor 	  Poor 	Poor.
Poor	Poor	  Poor 	  Poor 	Poor	  Very   poor.	  Very   poor.	  Poor 	  Poor 	  Very   poor.
poor.	Poor	<b>POOT</b>   	<b>POOT</b>   	Fair   	<b>POOT</b>   	<b>POOT</b>   	<b>POOT</b>   	<b>POOT</b>   	Poor.
Poor	Poor	  Fair 	  Fair 	  Fair 	Poor	Poor	  Poor 	  Fair 	Poor.
Poor   	Poor	  Fair 	  Fair   	  Fair 	  Very   poor. 	  Very   poor. 	  Poor   	   <b>Fair</b> 	  Very   poor.
Very   poor.	Poor	  Poor	  Poor 	  Fair	  Poor 	  Poor 	  Poor 	  Poor	Poor.
Poor	Poor	  Fair 	  Fair 	  Fair 	  Fair 	  Fair 	  Poor 	  Fair 	  Fair. 
Very   poor.	Very poor.	  Fair 	  Fair 	  Fair 	  Very   poor.	  Very   poor.	  Poor 	  Fair 	  Very   poor.
  Fair 	Fair	    Good 	    Good 	    Good	    Poor 	    Very   poor.	    Fair 	    Good 	    Very   poor.
1	Poor Very poor. Poor Very poor. Poor Very poor. Poor Very poor. Very poor. Very poor. Very poor.	Fair   Fair	Fair Fair Fair  Poor Poor Fair  Very Poor Poor  Poor Poor Fair  Very Poor Fair  Very Poor Poor  Poor Poor Poor  Poor Poor Po	Fair Fair Fair Good  Poor Poor Fair Poor  Very Poor Fair Poor  Poor Poor Poor Poor  Poor Poor Fair Poor  Very Poor Fair Poor  Poor Poor Poor Poor  Poor Poor P	Fair Fair Fair Good Good  Poor Poor Fair Poor Fair  Very Poor Poor Poor Poor  Poor Poor Fair Poor Fair  Very Poor Fair Poor Fair  Poor Poor Poor Poor Poor  Poor Poor P	Fair Fair Fair Good Good Poor  Poor Poor Fair Poor Fair Very poor.  Very Poor Poor Poor Poor Poor Very poor.  Poor Poor Fair Poor Fair Poor Fair Poor  Poor Poor Fair Poor Fair Poor Poor Very poor.  Very Poor Poor Poor Poor Poor Poor Very poor.  Very Poor Poor Poor Poor Poor Poor Very poor.  Very Poor Poor Fair Fair Fair Poor  air Fair Fair Fair Poor  Poor Poor Fair Fair Fair Fair Fair	Fair Fair Fair Good Good Poor Poor  Poor Poor Fair Poor Fair Very Very poor.  Very Poor Fair Poor Fair Poor Poor Poor  Poor Poor Poor Poor Po	Fair Fair Fair Good Good Poor Poor Good  Poor Poor Fair Fair Good Good Poor Poor Good  Poor Poor Fair Poor Fair Poor Poor Poor Poor Poor Poor Poor Po	Fair Fair Fair Good Good Poor Poor Good Good  Poor Poor Poor Fair Poor Fair Very Poor Poor Poor Poor Poor Poor Poor Po

Table 11.--Wildlife Habitat--Continued

		P	otential	for habit	at elemen	ts		Potentia	l as habit	tat for
Map symbol and soil name	   Grain	Grasses	Wild   herba-	Hardwood	Conif-	Wetland	Shallow	  Openland		
	and seed	and legumes	ceous plants	trees	erous plants	plants	water   areas	wildlife 	wildlife 	wildlife 
71A:	 	 			 				 	 
Evart	Very   poor.	Very   poor.	Poor 	Poor	Poor 	Good 	Good 	Very   poor.	Poor 	Good. 
Sturgeon	  Very   poor.	  Fair   	  Fair 	Fair 	  Good 	Fair 	  Fair 	  Fair 	  Fair   	  Fair. 
72E:	 	 							 	 
Deerton	Poor	Poor	Poor	Poor	Poor	Very   poor.	Very   poor.	Poor	  Poor 	Very   poor.
Tokiahok	  Very   poor.	  Very   poor.	  Fair 	  Fair 	  Fair 	Very   poor.	Very   poor.	  Poor 	  Fair 	  Very   poor.
Trout Bay	  Very   poor.	  Poor 	  Poor 	Poor	  Poor   	Very   poor.	  Very   poor.	  Poor 	  Poor   	  Very   poor. 
72F:										
Deerton	Poor	Poor	Poor	Poor	Poor	Very   poor.	Very   poor.	Poor	Poor	Very   poor.
Tokiahok	Very   poor.	Very   poor.	  Fair 	Fair	  Fair 	Very	Very	Poor	  Fair 	  Very   poor.
Trout bay	  Very   poor.	  Poor   	  Poor 	  Poor 	  Poor   	Very   poor.	  Very   poor.	  Poor 	  Poor   	  Very   poor. 
76C:						İ				
Garlic	Poor	Poor	Fair	Good	Good	Very   poor.	Very   poor.	Poor	  Fair 	Very   poor.
Blue Lake	  Fair 	  Fair 	  Good 	  Good 	  Good 	Very   poor.	Very   poor.	  Fair 	  Good 	  Very   poor.
Voelker	  Poor 	  Poor 	  Good 	  Good 	  Good 	Very   poor.	Very   poor.	  Fair 	  Good 	  Very   poor.
76E:									 	 
Garlic	Very  poor.	Very  poor.	Fair	Good	  Good 	Very	Very	Poor	  Fair 	  Very   poor.
Blue Lake	  Very   poor.	  Very   poor.	  Good 	  Good 	  Good 	Very   poor.	Very   poor.	  Poor 	  Fair 	  Very   poor.
Voelker	  Very   poor.	  Very   poor.	  Good 	  Good 	  Good 	Very   poor.	  Very   poor.	  Poor 	  Good 	  Very   poor.
76F:			 	1	 			 	 	 
Garlic	Very   poor.	Very   poor.	Fair	Good	Good	Very   poor.	Very   poor.	Poor	  Fair 	Very   poor.
Blue Lake	  Very   poor.	  Very   poor.	  Good 	  Good 	  Good 	Very   poor.	Very   poor.	  Poor 	  Good 	  Very   poor.
Voelker	  Very   poor.	  Very   poor.	  Good 	  Good 	  Good 	Very   poor.	  Very   poor.	  Poor 	  Good 	  Very   poor.
770.	1	1			 				 	 
77B: Garlic	  Poor 	  Poor 	  Fair 	  Good 	  Good 	Very   poor.	Very   poor.	  Poor 	  Fair 	  Very   poor.
					[	1				

Table 11.--Wildlife Habitat--Continued

	 	Po	otential	for habit	at elemen	 ts		Potentia	l as habit	tat for
Map symbol	·		Wild	1	1			<u>.                                    </u>		
and soil name	Grain and seed crops	Grasses and legumes	herba- ceous plants	Hardwood   trees	Conif- erous plants	Wetland   plants	Shallow   water   areas		Woodland  wildlife	
77B: Blue Lake	  Fair 	  Fair 	  Good 	  Good 	  Good	  Poor 	  Very   poor.	  Fair 	  Good 	Very poor.
Voelker	  Fair 	  Fair 	  Good 	  Good 	  Good 	  Poor 	  Very   poor.	  Fair 	  Good 	  Very   poor.
77D:	 	 	 	 	 	 	 	 	 	 
Garlic	  Poor 	  Poor 	  Fair 	  Good 	  Good 	Very   poor.	Very   poor.	  Poor 	  Fair 	Very poor.
Blue Lake	  Fair 	  Fair 	  Good 	  Good 	  Good 	  Poor 	  Very   poor.	  Fair 	  Good 	Very poor.
Voelker	  Poor 	  Poor 	  Good 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Very   poor.
77E:	 	 	 	 	 	 		 	 	
Garlic	  Very   poor.	  Very   poor.	  Fair 	Good	Good	Very   poor.	Very   poor.	  Poor 	  Fair 	Very poor.
Blue Lake	  Very   poor.	  Very   poor.	  Good 	  Good 	  Good 	Very   poor.	Very   poor.	  Poor 	  Good 	Very   poor.
Voelker	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Poor 	  Good 	  Very   poor.
88:	 	 	 	 	 	 	 	 	 	 
Cathro	  Very   poor.	  Poor 	  Poor 	  Poor 	  Poor 	Good	Good	  Poor 	  Poor 	Good.
Ensley	  Very   poor.	  Poor 	  Fair 	  Fair 	  Fair 	  Good 	  Good 	  Poor 	  Fair 	Good.
93:	 	 	 	 	 	 	 	 	 	 
Tawas	  Poor 	  Poor 	  Poor 	  Poor 	  Poor 	  Good 	  Good 	  Poor 	  Poor 	Good.
Deford	Very   poor.	Poor 	Fair 	Fair 	Fair 	Good 	Good 	Poor 	Fair 	Good.
95B:	 	 	 		 			 	 	 
Liminga	  Fair 	  Fair 	  Good 	Good	  Good 	Very   poor.	Very   poor.	  Fair 	  Good 	Very poor.
104C:		 			! 					
Fence	  Fair 	  Good 	Good 	Good 	Good 	Very   poor.	Very   poor.	  Good 	Good 	Very poor.
109D:			<u> </u>		<u> </u>			<u> </u>	<u> </u>	
Rousseau	Poor	Poor	Fair 	Fair 	Fair 	Very   poor.	Very   poor.	Fair 	Fair 	Very poor.
Dawson	  Very   poor.	  Very   poor.	  Poor 	  Poor 	  Poor 	  Good 	  Good 	  Poor 	  Poor 	Good.
109F:	 	 	 	 	 			 	 	 
Rousseau	  Very   poor.	  Poor 	  Fair 	  Fair 	  Fair 	Very   poor.	Very   poor.	  Fair 	  Fair 	Very   poor.
Dawson	  Very   poor. 	  Very   poor. 	  Poor   	  Poor   	  Poor   	  Good 	  Good   	  Poor   	  Poor   	  Good. 

Table 11.--Wildlife Habitat--Continued

Man grant - 1	՝ ————	ı		1	at elemen	1		Potentia	l db Habi	l IOI
Map symbol and soil name	Grain and seed crops	Grasses and	Wild   herba-   ceous   plants	  Hardwood   trees	Conif- erous	  Wetland   plants	Shallow   water   areas	  Openland  wildlife 	  Woodland  wildlife 	
125B:	 	 	 	 	 				 	 
Stutts	  Good 	  Good 	  Good 	Good	  Good 	Very   poor.	Very	Good	  Good 	Very   poor.
Kalkaska	  Fair 	  Fair 	  Fair 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Very   poor.
125D:	 	 	 		 				 	 
Stutts	  Fair 	Good	Good	Good	Good	Very   poor.	Very   poor.	Good	Good	Very poor.
Kalkaska	  Poor 	  Fair   	  Fair   	  Good 	  Good 	  Very   poor.	  Very   poor.	  Fair   	  Good 	  Very   poor.
125E:	 	 							 	 
Stutts	Poor	Fair	Good	Good	Good	Very   poor.	Very   poor.	Fair	Good	Very poor.
Kalkaska	  Poor 	  Fair 	  Fair 	  Good 	  Good 	Very   poor.	Very   poor.	  Fair 	  Good 	  Very   poor.
135B:	 	 	 		 				 	 
Munising	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Ensley	  Very   poor.	  Poor 	  Fair 	  Fair 	  Fair 	  Good 	  Good 	  Poor 	  Fair 	  Good. 
145C:	 	 	 		 			 	 	 
Munising	Very poor.	Poor	Good	Good	Good	Very poor.	Very   poor.	Fair	Good	Very poor.
Yalmer	  Very   poor. 	  Poor   	  Good   	  Good 	  Good 	  Very   poor.	  Very   poor.	  Poor   	  Good 	  Very   poor. 
146B:			İ				İ	i		
Munising	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Skanee	  Poor 	  Fair 	  Fair 	  Poor 	  Fair 	  Fair 	  Fair 	  Fair 	  Poor 	  Fair. 
147A:										
Skanee	Very   poor.	Poor 	Fair 	Poor 	Fair   	Fair 	Fair 	Poor 	Poor 	Fair. 
Gay	  Very   poor.	  Poor 	  Fair 	  Fair 	  Fair 	  Good 	Fair 	  Poor 	  Fair 	  Fair. 
148B:	 	 	I 	I 	 				 	 
Shoepac	Fair	  Fair	Good	Good	  Good 	Poor	Poor	Fair	  Good 	Poor.
Ensley	  Very   poor.	  Poor 	  Fair 	  Fair 	  Fair 	  Good 	Good	  Poor 	  Fair 	  Good. 
155A:	 	 	 	 	 				 	 
Zeba	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
Jacobsville	  Very   poor.	  Poor	  Fair	  Fair	  Fair 	  Good	  Fair	  Poor	  Fair 	  Fair. 

Table 11.--Wildlife Habitat--Continued

		Po	otential	for habit	at elemen	ts		Potentia	l as habi	tat for
Map symbol and soil name	Grain and seed crops	  Grasses   and  legumes	Wild   herba-   ceous   plants	  Hardwood   trees	Conif- erous	  Wetland   plants	  Shallow   water   areas	  Openland  wildlife	  Woodland  wildlife 	
157B: Reade	    Fair 	    Good 	    Good 	    Good	    Good 	    Poor	    Poor 	    Good 	    Good 	    Poor. 
Nahma	Very   poor.	  Poor 	Poor	Poor	  Fair 	Good	Good	Poor	  Poor 	Good.
158C: Munising	    Poor 	    Fair 	    Good 	    Good 	    Good 	  Very   poor.	    Very   poor.	    Good 	    Good 	    Very   poor.
Abbaye	  Fair 	  Good 	  Good 	  Good 	  Good 	Very   poor.	Very   poor.	  Good 	  Good 	  Very   poor.
160B: Paquin	    Poor 	    Poor 	    Fair   	    Fair   	     <b>Fair</b> 	    Poor 	    Very   poor.	    Poor 	    Fair   	    Very   poor.
Finch	  Poor 	  Poor 	  Fair 	  Fair 	  Fair 	Poor	  Poor 	  Poor 	  Fair 	Poor.
161B: Yellowdog	  Very   poor.	  Poor 	  Poor 	  Very   poor.	  Poor 	  Very   poor.	  Very   poor.	  Poor 	  Very   poor.	  Very   poor.
Buckroe	  Very   poor.	  Poor 	  Poor 	Very   poor.	  Poor 	Very   poor.	  Very   poor.	  Poor 	  Very   poor.	  Very   poor.
165B: Chocolay	    Very   poor.	    Poor 	    Good 	    Fair 	    Good 	    Poor 	    Poor 	    Fair 	    Fair 	    Poor. 
Waiska	  Very   poor.	  Poor 	  Fair 	  Good 	  Good 	Very   poor.	Very   poor.	  Poor 	  Good 	  Very   poor.
166: Skandia	    Very   poor. 	    Very   poor.	    Poor   	    Poor   	    Poor 	    Good 	    Good 	    Very   poor. 	    Poor 	    Good. 
167: Skandia	  Very   poor.	  Very   poor.	  Poor 	  Poor 	  Poor 	  Good 	  Fair 	  Very   poor.	  Poor 	  Fair. 
Jacobsville	  Very   poor.	  Poor 	  Fair 	  Fair 	  Fair 	Good	  Fair 	  Poor 	  Fair 	  Fair. 
170B: Chocolay	    Very   poor.	    Poor 	    Good 	    Fair 	    Good 	    Poor 	    Poor 	    Fair 	    Fair 	    Poor. 
171B: Paavola	    Very   poor. 	    Poor 	    Poor 	  Very   poor.	    Poor 	    Poor 	  Very   poor.	    Poor   	    Very   poor. 	    Very   poor.
172D: Buckroe	  Very   poor.	    Poor 	    Fair 	  Poor	    Poor 	  Very   poor.	  Very   poor.	    Poor 	    Poor 	  Very   poor.
Rock outcrop.	   	   	   	   	   	   	   	   	   	   

Table 11.--Wildlife Habitat--Continued

		P	otential	for habita	at elemen	ts		Potentia	l as habit	tat for
Map symbol	İ		Wild			[	<u> </u>	Ī	l	
and soil name	Grain	Grasses	herba-	Hardwood	Conif-	Wetland	Shallow	Openland	Woodland	Wetland
	and seed	!	ceous	trees	erous	plants	water		wildlife	
	crops	legumes	plants		plants		areas			
				İ			1	İ		
172F:	İ	İ	į	į	j	į	į	į	İ	j
Buckroe	Very	Poor	Fair	Poor	Poor	Very	Very	Poor	Poor	Very
	poor.	ĺ	ĺ	İ	ĺ	poor.	poor.	İ	ĺ	poor.
	ĺ	ĺ	İ	İ	İ	İ	ĺ	İ	ĺ	ĺ
Rock outcrop.										
176B:										
Croswell	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very
										poor.
	!		!				!		!	
Kinross	Very	Poor	Poor	Fair	Fair	Good	Good	Very	Fair	Good.
	poor.		!				!	poor.	!	
181E:				03	   a = 3	177		   Desert		
Frohling	: -	Very	Good	Good	Good	Very	Very	Poor	Good	Very
	poor.	poor.				poor.	poor.			poor.
malai ahala					   Taller			   Dans		
Tokiahok	: -	Very	Fair	Fair	Fair	Very   poor.	Very   poor.	Poor	Fair	Very
	poor.	poor.	 	 	 	poor.	poor.	 	l I	poor.
185B:			1	i i	 			i i		 
McMaster	Poor	  Fair	Fair	Fair	  Fair	Poor	Very	Fair	  Fair	  Very
1101142 001	1						poor.			poor.
	 	 					1001.		 	1001.
186B:	ì	İ	i	i		i	i	i	i	
Chatham	Poor	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
							1	1		
186D:	i	İ	i	i	<u> </u>	i	i	i	i	
Chatham	Poor	Poor	Good	Good	Good	Very	Very	Fair	Good	Very
	i	i	İ	İ		poor.	poor.	İ	i	poor.
	İ	İ	į	İ	İ	i -	i -	İ	İ	 İ
187B:	İ	İ	İ	İ	j	İ	İ	İ	İ	İ
Reade	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
188B:										
Eben	Poor	Poor	Fair	Good	Good	Very	Very	Poor	Fair	Very
						poor.	poor.			poor.
188D:						!				
Eben	Poor	Poor	Good	Good	Good	Very	Very	Fair	Good	Very
						poor.	poor.			poor.
1000										
188E:			  Good				  Very	   Dans		
Eben	-	Very	GOOG	Good	Good	Very		Poor	Good	Very
	poor.	poor.	I I	I I	 	poor.	poor.	I I	l I	poor.
191B:	! 	! 	1	 	I 	1	1	 	 	 
Ruse	Poor	Poor	Fair	Poor	  Fair	Good	Poor	Poor	  Fair	Fair.
- = =										
Ensign	Poor	Poor	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Poor.
J	i	į	İ	İ		İ	i	İ	i	İ
197B:										
Shoepac	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Trenary	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
						poor.	poor.			poor.
198B:										
Shoepac	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
D 1 .	   = - 2 -									
Reade	rair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
	1	1	I	I	I	I	I	I	I	I

Table 11.--Wildlife Habitat--Continued

	!	. P		for habit	at elemen	ts		Potentia	l as habi	tat for-
Map symbol			Wild							
and soil name	Grain	Grasses	herba-	Hardwood	:	1	Shallow	Openland		
	and seed	and	ceous	trees	erous	plants	water	wildlife	wildlife	wildlif
	crops	legumes	plants	<u> </u>	plants		areas	<u> </u>		<u> </u>
200A:	 	 	 		 			 	 	 
Charlevoix	  Pair	  Good	Good	Good	  Good	Fair	Fair	Good	  Good	  Fair.
Charlevoix	<b>Fall</b> 	<b>G</b> OOQ	6000	6000	<b>G</b> OOQ	Fall	Fail	6000	<b>G</b> 000a 	<b>raii.</b> 
Ensley	Verv	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
	poor.									
		İ	, 		İ	İ	İ			İ
202B:	İ	j	j	j	j	j	j	į	İ	j
Sauxhead	Poor	Poor	Fair	Fair	Fair	Poor	Very	Poor	Fair	Very
							poor.			poor.
206B:										
Traunik	Poor	Poor	Fair	Good	Good	Very	Very	Poor	Fair	Very
	 	 			 	poor.	poor.		 	poor.
206D:	 	 	 		 			 	 	 
Traunik	Poor	Poor	Fair	Good	Good	Very	Very	Poor	Fair	Very
	 					poor.	poor.		 	poor.
		İ			İ	i	i	İ		į
211B:		ĺ	İ	j	ĺ	İ	İ	İ		ĺ
Munising	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Abbaye	Fair	Good	Good	Good	Good	Poor	Very	Good	Good	Very
							poor.			poor.
214B:	 	 			  -				 	 
Kalkaska	  Pair	  Fair	  Fair	Good	  Good	  Very	  Very	  Fair	  Good	  Very
Raikaska	<b>Faii</b> 	raii 	Fail	GOOG	GOOG	poor.	poor.	Fail	<b>G</b> 000a 	poor.
	 	 			 	poor:	poor:		 	1001.
Blue Lake	Fair	Fair	Good	Good	Good	Poor	Very	Fair	Good	Very
		İ	į	İ	İ	İ	poor.	į	: 	poor.
	İ	j	j	j	j	j	į	į	İ	j
214D:										
Kalkaska	Poor	Fair	Fair	Good	Good	Very	Very	Fair	Good	Very
						poor.	poor.			poor.
Dlue Teles	   ===================================	   Bain				17	177			
Blue Lake	Fair	Fair	Good	Good	Good	Very	Very   poor.	Fair	Good	Very
	 	 	 		 	poor.	poor.		 	poor.
214E:	 				! 				 	! 
Kalkaska	Very	Poor	Fair	Good	Good	Very	Very	Poor	Good	Very
	poor.	ĺ	İ	j	ĺ	poor.	poor.	İ		poor.
Blue Lake		Very	Good	Good	Good	Very	Very	Poor	Fair	Very
	poor.	poor.				poor.	poor.			poor.
221D.	 	 	 		 				 	 
221B: Jeske	Poor	  Poor	  Fair	Poor	  Fair	Poor	Poor	  Poor	  Poor	Poor.
oegve	1.001		- a - 1	12001	- a11	12001	12001		1.001	-001.
Au Train	  Verv	Poor	Fair	Fair	Fair	Poor	Very	Poor	Fair	Very
	poor.						poor.			poor.
		İ			İ	İ	i	İ		 
Gongeau	Very	Poor	Fair	Poor	Fair	Fair	Fair	Poor	Poor	Fair.
	poor.									
		ļ	[							
225B:										
Cusino	Poor	Poor	Fair	Good	Good	Very	Very	Fair	Good	Very
	 				 	poor.	poor.		 	poor.
225D:	 	l I	 		 				 	 
Cusino	Poor	  Poor	  Fair	  Good	  Good	  Very	  Very	  Fair	  Good	  Very
	1 2001	1 001	1.011	13000	10004	AGTA	AGTA	- 411	10004	ACTA
Cubino	ĺ	I				poor.	poor.			poor.

Table 11.--Wildlife Habitat--Continued

Cusino		1	Pe	otential	for habita	at elemen	ts		Potentia	l as habi	tat for
Manual   M	Map symbol	'			1	1	1				
and seed   and   ceous   trees   erous   plants   water   wildlife   wildli		Grain	Grasses	herba-	Hardwood	Conif-	Wetland	Shallow	Openland	Woodland	Wetland
		!	!		1						'
		!	!		02002		l				
Ralkaska		01025			1		1	42342	i i	<u> </u>	l İ
Ralkaska	226B:	ì	ì	İ	i		i	i	i	i	 
Cusino Poor Poor Pair Good Good Very Very Fair Good Ver Poor Fair Good Good Very Very Fair Good Ver Poor Poor Poor Poor Poor Poor Poor Po		  Fair	  Fair	  Fair	Good	Good	Verv	Verv	  Fair	Good	Very
	Rainabha						: -				poor.
		1	1			 	poor.	poor.	l I		poor.
	Cugino	Poor	Poor	  Fair	Good	Good	Very	Verv	  Fair	Good	   Verv
	Cubino	1	1		1	1	: -		1	1	_
Ralkaska		l I	l I			 	poor.	poor.	I I		poor.
Ralkaska	2260.					 			i i		 
Cusino		Poor	  Pair	Pair	Cood	Cood	Voru	17077	Pair	Cood	17027
Cusino	Raikaska	FOOT	Fair	Fail	GOOG	GOOG	: -		Fail	GOOG	_
		l I	l I	I I	l I	 	poor.	poor.	I I	I I	poor.
	Cusino	   Doom	   Doom	   Endm	Cood	Cood	170		   Endm	Cood	
	Cusino	POOL	POOL	rair	GOOG	GOOG	: -		rair	GOOG	-
Note		l I	l I	1			poor.	poor.	I I	1	poor.
Note	2268	l I	l I					1	I I		  -
Decition			   Dane						   De ess		
Cusino         Very poor.         Very poor.         Fair poor.         Good good         Good yery poor.         Very poor.         Fair poor.         Very poor.         Fair poor.         Very poor.         Fair poor.         Very poor.         Fair poor.         Good yery poor.         Very poor.         Poor poor.         Fair poor.         Good yery poor.         Very poor.         Poor poor.         Fair poor.         Very poor.         Poor poor.         Fair poor.         Fair poor.         Fair poor.         Poor	Kalkaska		Poor	rair	Good	GOOG	: -		Poor	Good	-
		poor.		!			poor.	poor.		!	poor.
Poor.   Poor	Guardan e			   To 1 or			 	 	   D = = = =	l market	 
226F:	Cusino	: -	: -	Fair	Good	Good			Poor	Fair	Very
Natiska   Very   Very   Pair   Good   Good   Very   Poor   Good   Very   Poor   Good   Very   Poor		poor.	poor.				poor.	poor.			poor.
Natiska   Very   Very   Pair   Good   Good   Very   Poor   Good   Very   Poor   Good   Very   Poor				!							
Deor.   Deor				!			1				
Cusino	Kalkaska	Very	: -	Fair	Good	Good	Very		Poor	Good	Very
		poor.	poor.	!		!	poor.	poor.		!	poor.
		ļ	ļ			_			ļ		
227A:	Cusino	: -	: -	Fair	Good	Good	: -		Poor	Fair	Very
Halfaday		poor.	poor.	!		!	poor.	poor.		!	poor.
Halfaday		!	!	!		!	!	!		!	
232B:		!	!	!		!	!	!		!	
Shelldrake	Halfaday	Poor	Poor	Fair	Good	Good	Poor	Poor	Poor	Good	Poor.
Shelldrake		ļ	ļ						ļ		
Door.   Door							1				
233B:  Abbaye	Shelldrake	-	Poor	Poor	Poor	Poor			Poor	Poor	Very
Abbaye		poor.	!	!		!	poor.	poor.		!	poor.
Abbaye				!					ļ	!	
Zeba				_		_					
Zeba	Abbaye	Fair	Good	Good	Good	Good	Poor		Good	Good	Very
234A:				!				poor.	ļ	!	poor.
Poor   Poor	_	ļ	ļ	_		_			ļ		
234A:  Levasseur	Zeba	: -	-	Good	Good	Good	Fair	Fair	Poor	Good	Fair.
Levasseur		poor.	poor.								
Levasseur	0045			!						!	 
Burt		1	1		-		l_				
Burt	Levasseur	-	-	Fair	Poor	Fair	Poor	Fair	Poor	Poor	Poor.
Door.   Door.   Door.		poor.	poor.	!							
Door.   Door.   Door.		 			-		<u> </u>				
235B:  Sauxhead	Burt	: -	-	Fair	Poor	Fair	Fair	Fair	Poor	Poor	Poor.
Sauxhead		poor.	poor.	!							
Sauxhead				!							
Burt				!		!	I -			<u> </u>	
Burt	Sauxhead	Poor	Poor	Fair	Fair	Fair	Poor		Poor	Fair	Very
poor.   poor.								poor.			poor.
poor.   poor.							<u> </u>				
236B:	Burt	-	-	Fair	Poor	Fair	Fair	Poor	Poor	Poor	Poor.
WaiskaVery Poor Fair Good Good Very Very Poor Good Ver		poor.	poor.								
WaiskaVery Poor Fair Good Good Very Very Poor Good Ver											
maam	Waiska	-	Poor	Fair	Good	Good	: -		Poor	Good	Very
poor.         poor.   poor.   po		poor.	ļ.	ļ.	!	[	poor.	poor.	!	!	poor.

Table 11.--Wildlife Habitat--Continued

	1							1		
		P		for habit	at elemen	ts		Potentia	l as habi	tat for
Map symbol and soil name	   Grain  and seed   crops	  Grasses   and  legumes	Wild   herba-   ceous   plants	  Hardwood   trees 	Conif- erous	  Wetland   plants	  Shallow   water   areas		  Woodland  wildlife 	
236D: Waiska	    Very   poor.	    Poor 	    Fair   	    Good 	    Good 	  Very   poor.	  Very   poor.	    Poor 	    Good 	    Very   poor.
237B: Chatham	  Fair	  Fair	Good	Good	Good	Poor	Poor	  Fair	Good	Poor.
Davies	  Very   poor.	  Poor 	  Fair 	  Fair 	  Fair 	  Good 	  Good 	  Poor 	  Fair 	  Good.
239B: Longrie	    Good	    Good	    Good	    Good	    Good	    Poor	    Poor 	    Good	    Good 	    Poor. 
Shingleton	Very   poor.	Poor	Poor	Good	Good	Very poor.	Very   poor.	Poor	Good	Very poor.
240F: Trout Bay	    Very   poor.	    Poor 	    Poor 	    Poor 	    Poor 	  Very   poor.	  Very   poor.	    Poor 	    Poor 	  Very   poor.
Gongeau	  Very   poor.	  Poor 	  Fair 	  Poor 	  Fair 	Very   poor.	Very   poor.	  Poor 	  Poor 	  Very   poor.
Shingleton	  Very   poor.	  Very   poor.	  Poor 	  Good 	  Good 	Very   poor.	  Very   poor.	  Poor 	  Good 	  Very   poor.
Rock outcrop.										 
241: Cathro	    Very   poor.	    Poor 	    Poor 	    Poor 	    Poor 	  Good 	  Good	    Poor 	    Poor 	    Good. 
Gay	Very   poor.	  Poor 	  Fair 	  Fair 	  Fair 	Good	Fair	  Poor 	  Fair 	  Fair. 
242B: Kalkaska	    Fair   	    Fair   	    Fair   	    Good 	    Good 	  Very   poor.	    Very   poor.	    Fair   	    Good 	    Very   poor.
242D: Kalkaska	    Fair   	    Fair   	    Fair   	  Good 	  Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	  Very   poor.
242F: Kalkaska	  Very   poor.	  Very   poor.	    Fair   	    Fair   	    Fair   	  Very   poor.	  Very   poor.	  Poor 	    Fair   	  Very   poor.
243: Markey	  Very   poor.	  Poor 	  Poor 	  Poor 	  Poor 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Good. 
245B: Trout Bay	  Very   poor.	  Poor 	  Poor 	  Poor 	  Poor 	  Fair 	  Fair 	  Poor 	  Poor 	  Fair. 
Lupton	Very  poor.	  Poor 	  Poor 	  Poor 	  Poor 	Fair	  Fair 	  Poor 	  Poor 	  Fair. 
Gongeau	  Very   poor.	  Poor 	  Fair 	  Poor 	  Fair 	  Fair 	  Fair 	  Poor 	  Poor 	  Fair. 

Table 11.--Wildlife Habitat--Continued

	ļ	Po		for habita	at elemen	ts	1	Potentia	l as habit	tat for-
Map symbol and soil name	Grain and seed crops	Grasses and legumes	Wild   herba-   ceous   plants	  Hardwood   trees	Conif-   erous   plants	  Wetland   plants	Shallow   water   areas		  Woodland  wildlife	
246B: Garlic	    Poor 	    Poor 	    Fair   	    Good 	    Good 	  Very   poor.	    Very   poor. 	    Poor   	    Fair 	    Very   poor.
246D: Garlic	  Poor 	  Poor 	  Fair 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Poor 	  Fair	  Very   poor.
246E: Garlic	  Very   poor.	    Very   poor.	    Fair   	    Good 	    Good 	  Very   poor.	    Very   poor.	    Poor 	    Fair 	    Very   poor.
248B: Escanaba	    Fair 	    Fair 	    Good 	  Good	    Good	  Poor	  Very   poor.	    Fair 	Good	  Very   poor.
Greylock	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Very   poor.	  Good 	  Good 	  Very   poor.
248D: Escanaba	  Fair 	  Fair 	  Good	  Good	  Good	  Very   poor.	  Very   poor.	  Fair 	Good	  Very   poor.
Greylock	  Fair   	  Good 	  Good 	  Good 	  Good 	  Very   poor.	  Very   poor. 	  Good 	  Good 	  Very   poor. 
248E: Escanaba	  Very   poor.	  Poor 	  Good 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Fair 	Good	  Very   poor.
Greylock	  Very   poor. 	  Poor   	  Good   	  Good 	  Good 	Very   poor.	  Very   poor.	  Fair   	  Good 	  Very   poor. 
249B: Sauxhead	  Poor 	  Poor 	  Fair 	  Fair 	  Fair 	  Poor 	  Very   poor.	  Poor 	  Fair	  Very   poor.
Skandia	  Very   poor. 	  Very   poor. 	  Poor   	  Poor 	  Poor   	  Good 	  Good 	  Very   poor. 	  Poor 	  Good.   
250B: Chocolay	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Good	  Poor	  Poor	  Poor 	  Fair	  Poor. 
Jacobsville	  Very   poor. 	  Poor   	  Fair   	  Fair   	  Fair   	  Good   	  Fair   	  Poor   	  Fair 	  Fair.   
251B: Greylock	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Very   poor.	  Good 	  Good	  Very   poor.
251D: Greylock	    Fair 	    Good 	    Good 	    Good 	    Good 	  Very   poor.	    Very   poor.	    Good 	    Good	    Very   poor.
252A: Finch	    Poor 	    Poor 	    Fair 	    Fair 	     <b>Fair</b> 	    Poor	    Poor 	    Poor 	    Fair	    Poor. 
Kinross	  Very   poor.	  Poor 	  Poor 	  Fair 	  Fair 	Good	  Good 	Very  poor.	  Fair	  Good. 

Table 11.--Wildlife Habitat--Continued

	<u> </u>	P		for habit	at elemen	its		Potentia	l as habi	tat for-
Map symbol and soil name	   Grain  and seed   crops	Grasses and	Wild   herba-   ceous   plants	  Hardwood   trees	Conif- erous	  Wetland   plants	  Shallow   water   areas	  Openland  wildlife 	  Woodland  wildlife 	
254C: Kalkaska	    Poor 	    Fair 	    Fair 	  Good	    Good	  Very   poor.	  Very   poor.	    Fair 	    Good	  Very   poor.
Blue Lake	  Fair 	  Fair 	  Good 	Good	  Good 	  Poor	  Very   poor.	  Fair 	  Good 	  Very   poor.
254E: Kalkaska	    Very   poor.	    Poor 	    Fair 	  Good	    Good 	  Very   poor.	  Very   poor.	    Poor 	    Good 	    Very   poor.
Blue Lake	  Very   poor.	  Very   poor.	  Good 	Good	  Good 	Very   poor.	Very   poor.	Poor	  Fair 	  Very   poor.
254F: Kalkaska	    Very   poor.	  Very   poor.	    Fair   	  Good 	    Good 	  Very   poor.	  Very   poor.	    Poor   	    Good 	    Very   poor.
Blue Lake	Very   poor.	Very   poor.	Good	Good	Good	Very   poor.	Very   poor.	Poor	  Fair 	Very   poor.
255D: Wallace	    Poor 	    Poor 	    Fair 	    Fair 	    Fair 	  Very   poor.	  Very   poor.	    Poor 	    Fair 	    Very   poor.
256B: Whitewash	     <b>Fair</b>   	     <b>Fair</b>   	    Good 	  Good 	    Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	    Very   poor.
266A: Spot	    Poor 	  Poor	  Fair 	  Fair	    Fair 	  Good	  Good	  Poor	    Fair 	  Good.
Finch	  Poor 	Poor	Fair	Fair	Fair	Poor	Poor	Poor	  Fair 	Poor.
267A: Finch	  Poor 	  Poor 	  Fair 	  Fair 	  Fair 	  Poor 	  Poor 	  Poor 	  Fair 	  Poor. 
268C: Munising	  Fair   	  Good 	  Good 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Good 	  Good 	  Very   poor.
Frohling	  Fair 	  Good 	  Good	  Good	  Good	  Very   poor.	  Very   poor.	  Good 	  Good 	  Very   poor.
Cookson	  Fair 	  Good 	  Good 	Good	  Good 	Very   poor.	Very   poor.	  Good 	  Good 	  Very   poor.
269E: Frohling	    Very   poor.	    Very   poor.	    Good 	  Good 	    Good 	  Very   poor.	    Very   poor.	    Poor 	    Good 	    Very   poor.
Garlic	  Very   poor.	  Very   poor.	  Fair 	Good	  Good 	Very   poor.	Very   poor.	  Poor 	  Fair 	  Very   poor.
Cookson	  Very   poor.	  Fair 	  Good 	Good	  Good 	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Very   poor.

Table 11.--Wildlife Habitat--Continued

		Po	otential	for habit	at elemen	ts		Potentia	l as habi	tat for-
Map symbol		<u>-</u>	Wild				1			
and soil name	Grain and seed crops	Grasses and	herba- ceous plants	Hardwood   trees	Conif- erous	Wetland   plants	Shallow   water   areas	: -	  Woodland  wildlife 	:
				İ		İ	İ	İ	İ	İ
272C: Munising	  Fair 	  Good 	  Good 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Good 	  Good 	  Very   poor.
Yalmer	  Fair	  Fair	  Fair	  Good	  Good	Poor	Poor	  Fair	  Good	  Poor.
Frohling	  Good 	  Good 	  Good 	  Good 	  Good 	Poor	Very   poor.	  Good 	  Good 	  Very   poor.
275B:		 	 		 				 	 
Munising	Good	  Good 	  Good 	Good	  Good 	Poor	Poor	Good	  Good 	Poor.
Cookson	Good	  Good 	  Fair 	Good	  Good 	Poor	Poor	  Good 	  Good 	Poor.
281E: Mongo	  Very   poor.	  Poor	  Good	  Good	  Good	  Very   poor.	  Very   poor.	  Poor	  Good	  Very   poor.
282B:     Furlong	  Very   poor.	    Poor 	    Good 	    Good 	    Good 	    Very   poor.	    Very   poor.	    Poor 	    Good 	    Very   poor.
Shingleton	Very poor.	  Poor 	  Poor 	  Good	  Good	  Very   poor.	  Very   poor.	  Poor 	  Good 	  Very   poor.
282D:		 	 		 			 	 	 
Furlong	Very poor.	Poor	Fair 	Good	Good	Very poor.	Very poor.	Poor	Good	Very   poor.
Shingleton	  Poor	  Poor 	  Poor 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Poor 	  Good 	  Very   poor.
284B:	 	 	 		 				 	 
Steuben	Fair	Fair	  Good	Good	  Good	Poor	Poor	Fair	  Good 	Poor.
Blue Lake	Fair	  Fair 	  Good	Good	  Good	Poor	Very   poor.	  Fair 	  Good 	  Very   poor.
Kalkaska	  Fair 	  Fair 	  Fair 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Very   poor.
284D: Steuben	    Fair 	    Fair 	    Good 	    Good	    Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	    Very   poor.
Blue Lake	  Fair 	  Fair 	  Good 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Very   poor.
  Kalkaska  	  Poor	  Fair 	  Fair 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Very   poor.
284E: Steuben	    Poor	    Fair 	    Good 	    Good 	    Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	    Very   poor.
Blue Lake	  Very   poor.	  Very   poor.	  Good 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Poor 	  Fair 	  Very   poor.
Kalkaska	  Very   poor.	  Very   poor.	  Fair	  Good	  Good	  Very   poor.	  Very   poor.	  Poor	  Good	  Very   poor.

Table 11.--Wildlife Habitat--Continued

				for hobit				Dotontio	l og hobi	tot for
Map symbol		P	Wild	for habit	at elemen	LS 		Potentia	l as habit	Lat for
and soil name	Grain	Grasses	herba-	Hardwood	Conif-	Wetland	Shallow	  Openland	  Woodland	  Wetland
	and seed	!	ceous	trees	erous	plants	water	-	wildlife	:
	crops	legumes	plants	<u> </u>	plants	<u>i                                      </u>	areas	İ	<u> </u>	İ
285B:	   De ess	   De ess				   Dann	   De ess	   De ess		   De e
Halfaday	Poor	Poor	Fair	Good	Good	Poor	Poor	Poor	Good 	Poor.
Kinross	Very	Poor	Poor	Fair	Fair	Good	Good	Very	Fair	Good.
	poor.		ĺ				ĺ	poor.	ĺ	
		ļ	[							
286B: Greylock						   Dann				
Greylock	Good	Good	Good	Good	Good	Poor	Very   poor.	Good	Good 	Very   poor.
Cookson	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
287B:		 	   To 2 to 1	 	 		 	   = - 1	 	 
McMaster	Poor	Fair	Fair	Fair	Fair	Poor	Very   poor.	Fair	Fair	Very
		 			 		1		 	poor.
Davies	Very	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
	poor.									
290A:	170.00	170	Doom	Poor	  Poor	170.000	170	170	   Doom	170
Namur	poor.	Very   poor.	Poor	POOT	POOT	Very   poor.	Very   poor.	Very   poor.	Poor	Very   poor.
Ruse	Poor	Poor	Fair	Poor	Fair	Good	Poor	Poor	Fair	Fair.
292B:									_	
Mashek	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
296D:	 	 	 		 		 	 	 	 
Islandlake	Fair	Fair	Fair	Good	Good	Very	Very	Fair	Good	Very
	į	j	į	j	į	poor.	poor.	į	j	poor.
McMillan	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
		l I	 	 	 	poor.	poor.	 	 	poor.
296E:		 								! 
Islandlake	Very	Very	Good	Good	Good	Very	Very	Poor	Fair	Very
	poor.	poor.				poor.	poor.			poor.
									_	
McMillan		Fair	Good	Good	Good	Very	Very	Good	Good	Very
	poor.	 	 		 	poor.	poor.	 	 	poor.
297B:										! 
Rubicon	Poor	Poor	Fair	Poor	Fair	Very	Very	Poor	Poor	Very
						poor.	poor.			poor.
297D:		 			 			 	 	  -
Rubicon	Poor	  Poor	  Fair	Poor	  Fair	Very	  Very	Poor	  Poor	Very
						poor.	poor.			poor.
	į	j	j	j	İ	į	į	j	j	j
298B:										
Wurtsmith	Poor	Poor	Good	Fair	Good	Poor	Very	Fair	Fair	Very
		I I	 		[ [	 	poor.	 	 	poor.
Deford	Very	Poor	  Fair	Fair	Fair	Good	Good	Poor	  Fair	Good.
	poor.	į į	į	İ	į	İ	į	į	İ	
	[									
299F:		 			 	 	 	 		 
Shelldrake	: -	Very	Poor	Poor	Fair	Very	Very   poor.	Very	Poor	Very
	poor.	poor.	 		[ 	poor.	poor.	poor.	 	poor.
	1	I .	I	I	I	T.	I	I	I	I

Table 11.--Wildlife Habitat--Continued

		P	otential	for habit	at elemen	ts		Potentia	l as habi	tat for-
Map symbol		<del>_</del> :	Wild				<u> </u>			
and soil name	Grain and seed crops	Grasses and legumes	herba- ceous plants	Hardwood   trees	Conif-   erous   plants	Wetland   plants	Shallow   water   areas		Woodland  wildlife	
300F:	 	 			 				 	 
Shelldrake	  Very   poor.	  Very   poor.	  Poor 	Poor	  Fair 	Very	Very	Very   poor.	  Poor 	  Very   poor.
Dune land	  Very   poor.	  Very   poor.	  Poor 	Very	  Poor 	Very   poor.	Very   poor.	  Poor 	  Very   poor.	  Very   poor.
301F:	 	 			 			 	 	 
Cookson	Very   poor.	  Fair 	Good	Good	Good	Very   poor.	Very   poor.	Fair 	  Good 	Very   poor.
Nykanen	  Very   poor.	  Very   poor.	  Fair 	Fair	  Fair 	Very	Very	  Poor 	  Fair 	  Very   poor.
302B: Dillingham	    Poor	    Fair	    Good	    Good	    Good	  Very	  Very	    Fair	    Good	    Very
		  -				poor.	poor.		 	poor.
Kalkaska	  Fair   	  Fair   	  Fair 	Good	  Good 	Very   poor.	Very   poor.	Fair 	  Good 	  Very   poor.
302D: Dillingham	  Poor	  Fair 	  Good	  Good	  Good	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Very   poor.
Kalkaska	  Poor 	  Fair 	  Fair 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Very   poor.
302E: Dillingham	  Very   poor.	    Fair 	    Good	  Good	    Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	    Very   poor.
Kalkaska	  Very   poor.	  Poor 	  Fair 	  Good 	  Good 	Very   poor.	Very   poor.	  Poor 	  Good 	  Very   poor.
302F: Dillingham	    Very   poor.	     <b>Fair</b> 	    Good 	  Good	    Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	    Very   poor.
Kalkaska	  Very   poor.	  Very   poor.	  Fair 	  Good 	  Good 	Very   poor.	Very   poor.	  Poor 	  Fair 	  Very   poor.
303B:	 	 							 	 
Kiva	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Trenary	  Good	  Good	Good	Good	  Good	Poor	Poor	Good	  Good	Poor.
303D: Kiva	     <b>Fair</b> 	     <b>Fair</b> 	    Fair 	    Good	    Good	  Very   poor.	  Very   poor.	    Good	    Good	    Very   poor.
Trenary	    Fair 	    Good 	  Good	  Good	    Good 	Very   poor.	Very   poor.	  Good	    Good 	    Very   poor.
303E: Kiva	    Very   poor.	    Very   poor.	    Fair 	    Good 	    Good 	  Very   poor.	  Very   poor.	    Good 	    Good 	    Very   poor.
Trenary	  Very   poor.	  Very   poor.	  Good 	  Good 	  Good 	  Very   poor.	  Very   poor.	  Good 	  Good 	  Very   poor.

Table 11.--Wildlife Habitat--Continued

			otential	for habit	at elemen	 ts		Potentia	l as habi	tat for
Map symbol	¦	<u>-</u> -	Wild							
and soil name	Grain	Grasses	herba-	Hardwood	Conif-	Wetland	Shallow	Openland	Woodland	Wetland
	and seed	and	ceous	trees	erous	plants	water	-	wildlife	:
	crops	legumes	plants	<u>i</u>	plants	<u>i                                    </u>	areas	İ	<u> </u>	İ
225										
305B: Wurtsmith	Doom	  Poor	  Good	  Fair	  Good	Poor	170	  Fair	  Fair	170
wurtsmitm			G00a 	Fair	G00a		Very   poor.	Fair 	Fair 	Very   poor.
Meehan	Poor	Poor	Good	Fair	Good	Fair	Fair 	Fair 	Fair 	Fair.
306C:	İ	İ			İ	İ	İ			İ
Deerton	Poor	Poor	Poor	Poor	Poor	Very	Very	Poor	Poor	Very
	 	 	 		 	poor.	poor.	 	 	poor.
Tokiahok	Very	Very	Fair	Fair	Fair	Very	Very	Poor	Fair	Very
	poor.	poor.				poor.	poor.			poor.
Jeske	  Poor	  Poor	  Fair	Poor	  Fair	Poor	  Poor	  Poor	  Poor	Poor.
307B:										
Rubicon	Poor	Poor	Fair 	Fair	Fair 	Very   poor.	Very   poor.	Poor	Fair 	Very   poor.
	İ	İ			İ					
307D:										
Rubicon	Poor	Poor	Fair 	Fair	Fair 	Very   poor.	Very   poor.	Poor	Fair 	Very   poor.
	İ	İ	İ		İ			İ		
308B:				 	 		 			 
Rubicon	Poor	Poor	Fair 	Fair	Fair 	Very   poor.	Very   poor.	Poor	Fair 	Very   poor.
	İ	İ			İ					
Sultz	Fair	Fair	Good	Good	Good	Poor	Very	Fair	Good	Very
	 	 	 		 		poor.	 	 	poor. 
308D:	İ	İ	İ	İ	İ	İ	İ	İ		İ
Rubicon	Poor	Poor	Fair	Fair	Fair	Very	Very	Poor	Fair	Very
	 	 	 		 	poor.	poor. 		 	poor. 
Sultz	Poor	Poor	Fair	Fair	Fair	Poor	Very	Poor	Fair	Very
		 	 		 		poor.	 	 	poor.
309B:		! 			 				 	 
Rubicon	Poor	Poor	Fair	Fair	Fair	Very	Very	Poor	Fair	Very
		 			 	poor.	poor.		 	poor.
309D:									 	
Rubicon	Poor	Poor	Fair	Fair	Fair	Very	Very	Poor	Fair	Very
	 	 	 		 	poor.	poor.	 	 	poor.
310B:									! 	! 
Kalkaska	Fair	Fair	Fair	Good	Good	Very	Very	Fair	Good	Very
	 	 	 		 	poor.	poor.	 	 	poor.
310D:	į	İ	İ		İ	i	į	İ		İ
Kalkaska	Fair	Fair	Fair	Good	Good	Very	Very	Fair	Good	Very
	 	 	 		[ [	poor.	poor.	 	 	poor. 
310E:	į	İ	İ		İ	i	į	İ		İ
Kalkaska	_	Poor	Fair	Good	Good	Very	Very	Poor	Good	Very
	poor.	I I	 	 	[ [	poor.	poor.	 	 	poor.
311B:	İ	İ			İ	i	į	İ		İ
Kalkaska	Fair	Fair	Fair	Good	Good	Very	Very	Fair	Good	Very
	I 	I 	 	 	[ [	poor.	poor.	 	 	poor.
	I	I .	I	I	I .	1	I	I	I	I

Table 11.--Wildlife Habitat--Continued

		Po		for habita	at elemen	ts	1	Potentia	l as habi	tat for
Map symbol and soil name	Grain and seed crops	Grasses and	Wild   herba-   ceous   plants	  Hardwood   trees 	Conif-   erous   plants	  Wetland   plants 	  Shallow   water   areas	  Openland  wildlife 	  Woodland  wildlife 	
311D: Kalkaska	    Fair   	    Fair   	    Fair   	    Good 	    Good 	  Very   poor.	  Very   poor.	    Fair   	    Good 	    Very   poor.
312B: Islandlake	  Fair 	  Fair 	  Fair 	  Good 	  Good	  Very   poor.	  Very   poor.	  Fair 	  Good	  Very   poor.
312D: Islandlake	    Fair   	    Fair   	    Fair   	    Good 	    Good 	    Very   poor.	    Very   poor.	    Fair   	    Good 	    Very   poor.
313B: Kalkaska	     <b>Fair</b>   	     <b>Fair</b>   	     <b>Fair</b>   	    Good 	    Good 	  Very   poor.	  Very   poor.	    Fair   	    Good 	  Very   poor.
314B: Blue Lake	  Fair 	  Fair 	  Good 	  Good 	  Good 	  Poor 	  Very   poor.	  Fair 	  Good 	  Very   poor.
315B: Blue Lake	    Fair 	    Fair 	    Good 	    Good 	    Good 	    Poor 	  Very   poor.	    Fair 	    Good 	  Very   poor.
316B: Blue Lake	    Fair 	    Fair 	    Good 	    Good 	    Good 	    Poor 	  Very   poor.	    Fair 	    Good 	    Very   poor.
316D: Blue Lake	    Fair 	    Fair 	    Good 	    Good 	    Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	    Very   poor.
317B: Kalkaska	    Fair 	    Fair 	    Fair 	    Good 	    Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	    Very   poor.
317D: Kalkaska	    Fair 	    Fair 	    Fair 	    Good 	    Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	    Very   poor.
318B: Islandlake	    Fair 	    Fair 	    Fair 	    Good 	    Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	    Very   poor.
318D: Islandlake	     <b>Fair</b> 	    Fair 	    Fair 	    Good 	    Good 	  Very   poor.	    Very   poor.	    Fair 	    Good 	    Very   poor.
319B: Islandlake	    Fair 	    Fair 	    Fair 	    Good 	    Good 	  Very   poor.	    Very   poor.	    Fair 	    Good 	    Very   poor.
319D: Islandlake	    Fair 	    Fair 	    Fair 	    Good 	    Good 	  Very   poor.	  Very   poor.	    Fair 	    Good 	    Very   poor.

Table 11.--Wildlife Habitat--Continued

		P	otential	for habita	at elemen	its		Potentia	l as habi	tat for
Map symbol			Wild							
and soil name	Grain	Grasses	herba-	Hardwood	Conif-	Wetland	Shallow	Openland	Woodland	Wetland
	and seed	and	ceous	trees	erous	plants	water	wildlife	wildlife	wildlife
	crops	legumes	plants		plants		areas	<u> </u>		
319E:	 	 	 		 					 
Islandlake	Very	Very	Good	Good	Good	Very	Very	Poor	Fair	Very
	poor.	poor.	į	į		poor.	poor.	į		poor.
319F:	 	 	 							 
Islandlake	Very	Very	Good	Good	Good	Very	Very	Poor	Fair	Very
	poor.	poor.	į	į		poor.	poor.	į		poor.
320B:	 	 	 							 
Kalkaska	Fair	Fair	Fair	Good	Good	Very	Very	Fair	Good	Very
		ĺ	į	į		poor.	poor.	į		poor.
321B:	 	 	 							 
Kalkaska	Fair	Fair	Fair	Good	Good	Very	Very	Fair	Good	Very
			į			poor.	poor.			poor.
Deerton	  Poor	  Fair	  Fair	Good	  Good	Very	  Very	Fair	Good	  Very
			į			poor.	poor.			poor.
321D:	 	 	 							 
Kalkaska	Poor	Fair	Fair	Good	Good	Very	Very	Fair	Good	Very
		İ	İ	į		poor.	poor.			poor.
Deerton	  Poor	  Fair	  Fair	Good	  Good	  Very	  Very	  Fair	Good	  Very
	İ	İ	İ	İ	İ	poor.	poor.	İ		poor.

### Table 12a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

	Pct. of map unit	basements	ut	   Dwellings with   basements   		Small commercial   buildings 		
		Rating class and	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
10: Beaches	    100	    Not rated 	     	    Not rated 	     	    Not rated 	     	
11C: Deer Park	   90 	  Not limited 	     	  Not limited 	 	  Somewhat limited   Slope	0.12	
11E: Deer Park	     95 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	    Very limited   Slope	1.00	
11F: Deer Park	     98 	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00	
12B: Rubicon	90	    Not limited		    Not limited		    Not limited		
12D: Rubicon	     95 	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope	      0.37	  Very limited   Slope	1.00	
12E: Rubicon	     95 	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00	  Very limited   Slope	1.00	
13B: Kalkaska	94	    Not limited		    Not limited		    Not limited		
13D: Kalkaska	     96 	  Somewhat limited   Slope	      0.37	    Somewhat limited   Slope	      0.37	    Very limited   Slope	1.00	
13E: Kalkaska	    100 	  Very limited   Slope	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	1.00	
15A: Croswell	     92   	  Somewhat limited   Depth to   saturated zone	      0.39	  Very limited   Depth to   saturated zone		  Somewhat limited   Depth to   saturated zone	0.39	
16A: Paquin	   90       		    0.50    0.39	saturated zone	    1.00    1.00	   Somewhat limited   Depth to thin   cemented pan   Depth to   saturated zone	    1.00    0.39	
17A: Au Gres	   92     	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00	

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings 	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
18: Kinross	     92     	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
19: Deford	     92     	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
21A: Ingalls	     90   	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00
24B: Munising	   90       	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    0.99	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    0.99
25B: Munising	   55     	   Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    0.99	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	  1.00    0.99
Yalmer	   30       	  Very limited   Depth to   saturated zone	    1.00     	   Very limited   Depth to   saturated zone   Depth to thin   cemented pan	    1.00    0.90	Very limited Depth to saturated zone	  1.00   
25D: Munising	   55       	   Very limited   Depth to   saturated zone   Depth to thick   cemented pan   Slope	    1.00    0.99    0.37	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan   Slope	    1.00    1.00    0.37	  Very limited   Depth to   saturated zone   Slope   Depth to thick   cemented pan	  1.00    1.00  0.99
Yalmer	   30       	   Very limited   Depth to   saturated zone   Slope 	  1.00    0.37	   Very limited   Depth to   saturated zone   Depth to thin   cemented pan   Slope	  1.00    0.90    0.37	  Very limited   Depth to   saturated zone   Slope 	  1.00    1.00
31D: Trenary	     85   	  Somewhat limited   Slope   Shrink-swell	      0.16  0.01	  Somewhat limited   Slope	      0.16	  Very limited   Slope   Shrink-swell	    1.00  0.01

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	   Dwellings with   basements 		Small commercial   buildings 		
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value	
33: Ensley	     90   	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	
35B: Munising, calcareous substratum	     40     	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	      1.00    0.95	 	      1.00    1.00	 	      1.00    0.95	
Yalmer, calcareous substratum	   30       	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    0.65	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    0.65	
Frohling, calcareous substratum	   20     	  Somewhat limited   Depth to thick   cemented pan	    0.90   	  Very limited   Depth to thick   cemented pan	    1.00 	  Somewhat limited   Depth to thick   cemented pan   Slope	0.90	
37B: Grand Sable	90	    Not limited	   	    Not limited		    Not limited	ļ	
37E: Grand Sable	     98 	    Very limited   Slope 	      1.00	  -  Very limited   Slope 	1.00	    Very limited   Slope	1.00	
38B: Rhody	   60         	   Very limited   Depth to   saturated zone   Ponding 	  1.00    1.00     	Very limited   Depth to   saturated zone   Ponding   Depth to hard   bedrock   Depth to soft   bedrock	  1.00    1.00  0.99    0.06	   Very limited   Depth to   saturated zone   Ponding 	  1.00    1.00 	
Towes	   30           	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    0.03   	saturated zone	  1.00    1.00    0.79	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    0.03   	
40B: Waiska, very stony	     90 	    Not limited 	     	    Not limited 	     	    Not limited 		

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	basements	ut	Dwellings with basements		Small commercia   buildings 	al
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
42:		 		 		 	
Davies	90	Very limited   Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone	1.00	saturated zone	1.00	saturated zone	1.00
		Large stones	0.14	Large stones	0.14	Large stones	0.14
46:							
Jacobsville, very stony	90	  Very limited   Depth to	1.00	  Very limited   Depth to	1.00	  Very limited   Depth to	1.00
	 	saturated zone Ponding	1.00	saturated zone Depth to hard	1.00	saturated zone Ponding	1.00
	   	Depth to hard   bedrock	0.06	bedrock   Ponding	1.00	Depth to hard   bedrock	0.06
47C:	 	 		 		 	
Deerton	55	Somewhat limited		Very limited		Very limited	
	 	Depth to hard bedrock	0.01	Depth to hard bedrock	1.00	Slope Depth to hard	1.00
		Slope	0.01	Depth to soft bedrock	0.84	bedrock	
	 	 		Slope 	0.01	 	
Au Train	30	Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
	   	Depth to soft bedrock	0.50	Depth to hard bedrock	1.00	Depth to soft bedrock	1.00
		Depth to hard bedrock	0.29	Depth to soft bedrock	1.00	Depth to hard bedrock	0.29
47E:				 		 	
Deerton	55	Very limited		Very limited		Very limited	
	 	Slope Depth to hard	1.00  0.01	Depth to hard bedrock	1.00	Slope Depth to hard	1.00
	   	bedrock		Slope   Depth to soft   bedrock	1.00	bedrock	
Au Train	3.0	  Verv limited		  Very limited		  Very limited	1
		Depth to   saturated zone	1.00	Depth to   saturated zone	1.00	Depth to saturated zone	1.00
	 	Slope Depth to soft	0.63	Depth to hard bedrock	1.00	Depth to soft bedrock	1.00
		bedrock		Depth to soft	1.00	Slope	1.00
		Depth to hard bedrock	0.29	bedrock   Slope	0.63	Depth to hard bedrock	0.29
48:		 		 		 	1
Burt	90	Very limited	:	Very limited	į	Very limited	į.
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	   	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	11
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
49B:		 		 		 	
Cookson	90   	Somewhat limited   Depth to hard   bedrock	  0.06 	Very limited   Depth to hard   bedrock	  1.00 	Somewhat limited   Depth to hard   bedrock	  0.06 
51:		 		 		 	
Nahma	50   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
	     	Ponding Depth to hard bedrock	1.00	Depth to hard bedrock	1.00    1.00	Ponding Depth to hard bedrock	1.00
Ruse	1 40	    Very limited		    Very limited			
Ruse	<b>40</b>   	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Very limited   Depth to   saturated zone	1.00
	 	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Ponding 	1.00	Ponding 	1.00	Ponding 	1.00
52B: Summerville	   85   	  Very limited   Depth to hard   bedrock	    1.00	  Very limited   Depth to hard   bedrock	    1.00	  Very limited   Depth to hard   bedrock	    1.00
57:	į į	 	į	  -	İ	  -	İ
Carbondale	30	  Very limited   Subsidence	1.00	  Very limited   Subsidence	1.00	  Very limited   Subsidence	1.00
	   	Depth to saturated zone Organic matter	1.00    1.00	Depth to saturated zone Organic matter	1.00    1.00	Depth to   saturated zone   Organic matter	1.00    1.00
	<u>.</u> 	content   Ponding	1.00	content Ponding	1.00	content   Ponding	1.00
Lupton	30	  Very limited   Subsidence	1.00	  Very limited   Subsidence	1.00	  Very limited   Subsidence	1.00
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	   	Organic matter content Ponding	1.00    1.00	Organic matter   content   Ponding	1.00    1.00	Organic matter content Ponding	1.00    1.00
Tawas	     30	  Very limited		  Very limited		  Very limited	
	   	Subsidence Depth to saturated zone	1.00	Subsidence Depth to saturated zone	1.00  1.00	Subsidence Depth to saturated zone	1.00  1.00 
	   	Organic matter content Ponding	1.00    1.00	Ponding   	1.00   	Organic matter content Ponding	1.00    1.00
58:		 		 		 	
Dawson	30   	Very limited   Subsidence   Depth to	  1.00  1.00	Very limited   Subsidence   Depth to	  1.00  1.00	Very limited   Subsidence   Depth to	  1.00  1.00
		saturated zone Organic matter	1.00	saturated zone	1.00	saturated zone Organic matter	1.00
		content Ponding	1.00	 		content Ponding	1.00

Table 12a.--Building Site Development--Continued

Map symbol and soil name	  Pct.   of  map  unit	basements	ut	   Dwellings with   basements   		   Small commercia   buildings   	al
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and   limiting features	Value
58: Greenwood	     30 	    Very limited   Subsidence	      1.00	    Very limited   Subsidence	      1.00	    Very limited   Subsidence	      1.00
	       	Depth to saturated zone Organic matter content	1.00	Depth to   saturated zone   Organic matter   content	1.00	Depth to   saturated zone   Organic matter   content	1.00
	   	Ponding	1.00	Ponding	1.00	Ponding	1.00
Loxley	30           	Very limited   Subsidence   Depth to   saturated zone   Organic matter   content   Ponding	  1.00  1.00    1.00    1.00	Very limited   Subsidence   Depth to   saturated zone   Organic matter   content   Ponding	  1.00  1.00    1.00    1.00	Very limited   Subsidence   Depth to   saturated zone   Organic matter   content   Ponding	  1.00  1.00    1.00 
59:	 	 		 		 	
Chippeny	55             	Very limited Subsidence Depth to saturated zone Organic matter content Ponding Depth to hard bedrock	  1.00  1.00    1.00    1.00  0.64	Very limited   Subsidence   Depth to   saturated zone   Depth to hard   bedrock   Ponding	  1.00  1.00    1.00    1.00	Very limited Subsidence Depth to saturated zone Organic matter content Ponding Depth to hard bedrock	  1.00  1.00    1.00    1.00  0.64
Nahma	   30         	   Very limited   Depth to   saturated zone   Ponding   Depth to hard   bedrock	  1.00    1.00  0.46	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Ponding	  1.00    1.00    1.00	   Very limited   Depth to   saturated zone   Ponding   Depth to hard   bedrock	  1.00    1.00  0.46
60: Histosols	   50       	  Very limited   Ponding   Subsidence   Depth to   saturated zone   Organic matter   content	  1.00  1.00  1.00    1.00	  Very limited   Ponding   Subsidence   Depth to   saturated zone   Organic matter   content	  1.00  1.00  1.00    1.00	  Very limited   Ponding   Subsidence   Depth to   saturated zone   Organic matter   content	  1.00  1.00  1.00
Aquents	   50   	İ	  1.00  1.00	  Very limited   Ponding	    1.00  1.00	  Very limited   Ponding	  1.00  1.00
61: Pits	    100	    Not rated		    Not rated		    Not rated	
62F: Udipsamments	     50	    Not rated		    Not rated		    Not rated	
Udorthents	   50 	  Not rated 	   	  Not rated 		  Not rated 	
64B: Kiva	     90 	    Not limited 		    Not limited 		    Not limited 	     

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	al
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64D:	 	  -		  -			
Kiva	90 	Somewhat limited   Slope	0.16	Somewhat limited   Slope	0.16	Very limited   Slope	1.00
65D:	 	 	1	 		 	1
Jeske, bedrock			İ		i		i
terrace	45	Very limited		Very limited		Very limited	
		Depth to	1.00		1.00		1.00
	 	saturated zone Depth to hard	0.35	saturated zone Depth to hard	1.00	saturated zone Depth to hard	0.35
	 	bedrock	0.33	bedrock	1	bedrock	
	 			Depth to soft bedrock	0.99		İ
Gongeau, bedrock	 	 	l I	 	l I	 	
terrace	25	  Very limited		  Very limited	i	  Very limited	i
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	ļ	saturated zone	
		Depth to hard bedrock	0.54	Depth to hard bedrock	1.00	Depth to soft bedrock	1.00
	 	Depth to soft	0.50	Depth to soft	1.00	Depth to hard	0.54
	   	bedrock		bedrock		bedrock	
Deerton, bedrock		 		 		 	
terrace	20	Somewhat limited	Ì	Very limited	ĺ	Very limited	İ
		Slope	0.84		1.00	-	1.00
	 	Depth to hard bedrock	0.01	bedrock Depth to soft	0.84	Depth to hard bedrock	0.01
	 	Dedrock	i	bedrock		Dedicer	i
				Slope	0.84		į
65F:	 			 			
Jeske, bedrock	İ	İ	İ	İ	İ	İ	į
terrace	45			Very limited	1	Very limited	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	 	Depth to hard	0.35	Depth to hard	1.00	Depth to hard	0.35
	İ	bedrock		bedrock	i	bedrock	
	 	 		Depth to soft bedrock	0.99	 	
Gongeau, bedrock	 	 	 	  -	İ I	 	İ
terrace	25	  Very limited		  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00		1.00
		saturated zone		saturated zone		saturated zone	
	 	Depth to hard bedrock	0.54	Depth to hard bedrock	1.00	Depth to soft bedrock	1.00
	 	Depth to soft	0.50	Depth to soft	1.00	Depth to hard	0.54
		bedrock		bedrock		bedrock	
Deerton, bedrock		 		 		 	
terrace	20		!	Very limited	1	Very limited	
		Slope	1.00	Depth to hard	1.00	Slope	1.00
	 	Depth to hard	0.01	bedrock   Slope	1.00	Depth to hard bedrock	0.01
		 	İ	Depth to soft	0.84		
			1		1	i e e e e e e e e e e e e e e e e e e e	

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings   	al
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
66D:	 	 	 	 		 	
Ruse, bedrock							
terrace	40	-		Very limited	1	Very limited	
		Depth to	1.00		1.00		1.00
		saturated zone Depth to hard	1.00	saturated zone Depth to hard	1.00	saturated zone Depth to hard	1.00
		bedrock	1	bedrock	1	bedrock	1
		Depth to soft	0.50	!	1.00	Depth to soft	1.00
	į	bedrock	į	bedrock	į	bedrock	į
Ensign, bedrock	 	 	 	 		 	
terrace	30	  Very limited		  Very limited	i	  Very limited	
	į	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Depth to hard	1.00	Depth to hard	1.00	Depth to hard	1.00
		bedrock Depth to soft		bedrock	11 00	bedrock	
		Depth to soft   bedrock	0.50 	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
	į		į	İ	į	İ	į
Nykanen, bedrock					ļ		
terrace	20	Very limited	  1.00	Very limited	1.00	Very limited	1.00
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1
		Depth to hard	0.84	Depth to hard	1.00	Depth to soft	1.00
	İ	bedrock		bedrock	i	bedrock	i
	İ	Slope	0.63	Depth to soft	1.00	Slope	1.00
		Depth to soft	0.50	bedrock		Depth to hard	0.84
	 	bedrock	 	Slope	0.63	bedrock	1
66F:					i		
Ruse, bedrock							
terrace	40	-		Very limited	1	Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	 	saturated zone Depth to hard	1.00	saturated zone Depth to hard	1.00	saturated zone Depth to hard	1.00
		bedrock		bedrock		bedrock	
	į	Depth to soft	0.50	Depth to soft	1.00	Depth to soft	1.00
		bedrock		bedrock		bedrock	
Ensign, bedrock	 	 	 	 		 	
terrace	30	  Very limited		  Very limited	i	  Very limited	i
	į	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Depth to hard	1.00	Depth to hard	1.00	Depth to hard	1.00
		bedrock		bedrock	1 00	bedrock	1 00
	 	Depth to soft bedrock	0.50 	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
	İ		İ	İ	İ	İ	İ
Nykanen, bedrock							
terrace	20	Very limited   Depth to	  1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone	1.00	saturated zone	1.00	saturated zone	1.00
	i	Slope	1.00	Depth to hard	1.00	Depth to soft	1.00
	İ	Depth to hard	0.84	bedrock	İ	bedrock	İ
		bedrock		Depth to soft	1.00	Slope	1.00
		Depth to soft bedrock	0.50	bedrock   Slope	  1.00	Depth to hard bedrock	0.84

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements	ı	Small commercia   buildings 	al
		   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
68: Pits, quarry	    100	    Not rated		    Not rated 		    Not rated 	
69B: Escanaba	     85	    Not limited 		    Not limited 		    Not limited 	
71A: Evart	   70     	  Very limited   Flooding   Depth to   saturated zone   Ponding	  1.00  1.00    1.00	  Very limited   Flooding   Depth to   saturated zone   Ponding	  1.00  1.00    1.00	  Very limited   Flooding   Depth to   saturated zone   Ponding	  1.00  1.00    1.00
Sturgeon	   20     	   Very limited   Flooding   Depth to   saturated zone	  1.00  1.00 	  Very limited   Flooding   Depth to   saturated zone	  1.00  1.00	  Very limited   Flooding   Depth to   saturated zone	  1.00  1.00
72E: Deerton, dissected	   40       	  Very limited   Slope   Depth to hard   bedrock	  1.00  0.01 	  Very limited   Depth to hard   bedrock   Slope   Depth to soft   bedrock	  1.00    1.00  0.84	  Very limited   Slope   Depth to hard   bedrock	  1.00  0.01 
Tokiahok, dissected	   30   	  Very limited   Slope   Depth to thick   cemented pan	    1.00  0.90	  Very limited   Depth to thick   cemented pan   Slope	  1.00    1.00	  Very limited   Slope   Depth to thick   cemented pan	  1.00  0.90
Trout Bay, dissected	   15             	Very limited   Subsidence   Depth to   saturated zone   Organic matter   content   Slope   Depth to soft   bedrock	  1.00  1.00    1.00    1.00  0.50	Very limited   Subsidence   Depth to   saturated zone   Organic matter   content   Depth to hard   bedrock   Depth to soft   bedrock	  1.00  1.00    1.00    1.00	Very limited   Slope   Subsidence   Depth to   saturated zone   Organic matter   content   Depth to soft   bedrock	  1.00  1.00  1.00    1.00 
72F: Deerton, dissected	   40       	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.01   	Very limited   Slope   Depth to hard   bedrock   Depth to soft   bedrock	    1.00  1.00    0.84	  Very limited   Slope   Depth to hard   bedrock 	    1.00  0.01 
Tokiahok, dissected	   25   	  Very limited   Slope   Depth to thick   cemented pan	  1.00  0.90	  Very limited   Slope   Depth to thick   cemented pan	  1.00  1.00	  Very limited   Slope   Depth to thick   cemented pan	  1.00  0.90

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	al
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
72F:		 		 		 	
Trout Bay, dissected	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	l i	Depth to	1.00	Depth to	1.00	Depth to	1.00
	 	saturated zone Organic matter	1.00	saturated zone Organic matter	1.00	saturated zone Organic matter	1.00
	 	content	1	content	1	content	1
		Depth to soft	0.50	Depth to hard	1.00	Depth to soft	1.00
		bedrock		bedrock		bedrock	
76C:		 		    Not limited		 	
Garlic, dissected	40	Not limited		NOT limited		Somewhat limited   Slope	0.88
Blue Lake, dissected	   30	  Not limited		  Not limited		  Somewhat limited	
		 		 		Slope 	0.88
Voelker, dissected	20	Somewhat limited	j	Very limited	į	Somewhat limited	j
	İ	Depth to thin	0.50	Depth to thin	1.00	Depth to thin	1.00
		cemented pan		cemented pan		cemented pan	
	 			 	 	Slope 	0.88
76E: Garlic, dissected	40	    Very limited	İ	    Very limited	İ	    Very limited	į
		Slope	1.00	Slope	1.00	: -	1.00
Blue Lake, dissected	30	  Verv limited		  Very limited		  Very limited	
Diac Lake, albectea		Slope	1.00	Slope	1.00	Slope	1.00
	İ	<u> </u>	i		i	İ	i
Voelker, dissected	20	Very limited	İ	Very limited	İ	Very limited	Ì
		Slope	1.00	Depth to thin	1.00	Slope	1.00
		Depth to thin	0.50	cemented pan		Depth to thin	1.00
		cemented pan		Slope 	1.00	cemented pan	
76F:		[		[	1	[	
Garlic, dissected	40	-		Very limited		Very limited	
	 	Slope	1.00	Slope	1.00	Slope	1.00
Blue Lake, dissected	30	  Verv limited		  Very limited		  Very limited	
Dide Lane, dibbeeted		Slope	1.00	Slope	1.00	Slope	1.00
Voelker, dissected	20	  Very limited		  Very limited		  Very limited	
	İ	Slope	1.00	Slope	1.00	Slope	1.00
	j	Depth to thin	0.50	Depth to thin	1.00	Depth to thin	1.00
		cemented pan		cemented pan		cemented pan	
77B:							-
Garlic	40	Not limited 		Not limited 		Not limited 	
Blue Lake	30	  Not limited	İ	  Not limited	İ	  Not limited	ĺ
Voelker	20	  Somewhat limited		  Very limited	i	  Somewhat limited	1
		Depth to thin	0.50	Depth to thin	1.00	Depth to thin	1.00

Table 12a.--Building Site Development--Continued

and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	11
	unit c   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77D:	 			 	 		
Garlic	40	Somewhat limited   Slope	0.16	Somewhat limited   Slope	0.16	Very limited   Slope	1.00
Blue Lake	   30 	  Somewhat limited   Slope	    0.16	  Somewhat limited   Slope	    0.16	  Very limited   Slope	    1.00
Voelker	   20 	  Somewhat limited   Depth to thin   cemented pan	    0.50	  Very limited   Depth to thin   cemented pan	    1.00 	  Very limited   Depth to thin   cemented pan	    1.00
	 	Slope	0.16	Slope	0.16	Slope 	1.00
77E:   Garlic	   40 	  Very limited   Slope	1.00	  Very limited   Slope	    1.00	  Very limited   Slope	1.00
Blue Lake	   30 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
Voelker	   20   	   Slope   Depth to thin   cemented pan	  1.00  0.50	   Slope   Depth to thin   cemented pan	  1.00  1.00	   Very limited   Slope   Depth to thin   cemented pan	  1.00  1.00
88: Cathro	     55   	  Very limited   Subsidence   Depth to   saturated zone	    1.00  1.00	  Very limited   Subsidence   Depth to   saturated zone	    1.00  1.00	  Very limited   Subsidence   Depth to   saturated zone	    1.00  1.00
	     	Organic matter content Ponding	1.00	Ponding	1.00	Organic matter content Ponding	1.00
Ensley	   35     	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	   Very limited   Depth to   saturated zone   Ponding	1.00
93: Tawas	     70	  Very limited   Subsidence	1.00	  Very limited   Subsidence	1.00	  Very limited   Subsidence	1.00
	     	Depth to   saturated zone   Organic matter   content	1.00    1.00	Depth to   saturated zone   Ponding 	1.00    1.00	Depth to   saturated zone   Organic matter   content	1.00    1.00
		Ponding	1.00	 	į Į	Ponding	1.00
Deford	20     	Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
95B: Liminga	     an	    Not limited		    Not limited		    Not limited	

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings 	al
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
104C:		l		l		 	
Fence, dissected	90	Somewhat limited   Depth to	0.98	  Very limited   Depth to	1.00	Somewhat limited   Depth to	0.98
	   	saturated zone Shrink-swell	  0.78 	saturated zone	   	saturated zone   Slope   Shrink-swell	0.88
109D:		l		l		 	
Rousseau	50	Somewhat limited   Slope	0.37	Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
Dawson	45	  Very limited		  Very limited		  Very limited	
242011		Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	į	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Organic matter content Ponding	1.00    1.00	Ponding   	1.00	Organic matter content Ponding	1.00    1.00
109F:	İ	İ		İ	ĺ		İ
Rousseau	55 	Very limited   Slope	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
Dawson	40	  Very limited		  Very limited		  Very limited	
		Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	   	saturated zone   Organic matter   content	1.00	saturated zone Ponding	1.00	saturated zone   Organic matter   content	1.00
		Ponding	1.00			Ponding	1.00
1050							
125B: Stutts	   65 	  Not limited 	   	  Not limited 		  Not limited 	
Kalkaska	35	Not limited		  Not limited		  Not limited	į
125D:		 		 		 	
Stutts	65	Somewhat limited   Slope	0.37	Somewhat limited   Slope	0.37	Very limited   Slope	1.00
Kalkaska	   25 	  Somewhat limited   Slope	0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
125E:		 		 		 	
Stutts	55	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
Kalkaska	   45 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	1.00
135B: Munising, calcareous substratum		  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	      1.00    0.99	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	      1.00    1.00	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	1.00

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	ıl
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
135B: Ensley	     25	    Very limited   Depth to	      1.00	    Very limited   Depth to	      1.00	    Very limited   Depth to	      1.00
	   	saturated zone Ponding	1.00	saturated zone   Ponding	1.00	saturated zone Ponding	11.00
145C: Munising, dissected,	   	 	   	 	   	   	
very stony	50   	Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to   saturated zone	  1.00 
	   	Depth to thick cemented pan	0.99	Depth to thick   cemented pan 	1.00   	Depth to thick   cemented pan   Slope	0.99    0.88
Yalmer, dissected, very stony	     35	      Very limited	 	      Very limited	 	    Very limited	į Į
very beeny	     	Depth to   saturated zone	1.00	Depth to   saturated zone   Depth to thin   cemented pan	1.00	Depth to   saturated zone   Slope	1.00
146B:	 		<u> </u> 	i 	į Į	 	į į
Munising, stony	60   	Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to   saturated zone	1.00
	   	Depth to thick cemented pan	0.99	Depth to thick cemented pan	1.00	Depth to thick cemented pan	0.99
Skanee, stony	30	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
		Depth to thin   cemented pan	0.50	Depth to thin   cemented pan	1.00	Depth to thin   cemented pan	1.00
147A: Skanee, very stony	     55	    Very limited	   	    Very limited	   	    Very limited	
	   	Depth to   saturated zone   Depth to thin	1.00    0.50	Depth to   saturated zone   Depth to thin	1.00    1.00	Depth to   saturated zone   Depth to thin	1.00    1.00
Gay, very stony	     25	cemented pan		cemented pan  Very limited		cemented pan  Very limited	
day, very scony	33	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
148B:	   	Ponding   	1.00   	Ponding   	1.00   	Ponding   	1.00   
Shoepac	70   	Somewhat limited   Depth to   saturated zone	0.98	Very limited   Depth to   saturated zone	1.00	Somewhat limited   Depth to   saturated zone	0.98
Ensley	20	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
	   	saturated zone   Ponding	1.00	saturated zone   Ponding	1.00	saturated zone   Ponding	1.00

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	1
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
155A: Zeba, very stony	   55       	Very limited Depth to saturated zone Depth to hard bedrock	    1.00    0.20	Very limited Depth to saturated zone Depth to hard bedrock	      1.00    1.00	  Very limited   Depth to   saturated zone   Depth to hard   bedrock	    1.00    0.20
Jacobsville, very stony	   30       	  Very limited   Depth to   saturated zone   Ponding   Depth to hard   bedrock	    1.00    1.00  0.06	Very limited Depth to saturated zone Depth to hard bedrock Ponding	    1.00    1.00 	  Very limited   Depth to   saturated zone   Ponding   Depth to hard   bedrock	  1.00    1.00  0.06
157B: Reade	     45     	Very limited   Depth to   saturated zone   Depth to hard   bedrock	    1.00    0.64	Very limited   Depth to   saturated zone   Depth to hard   bedrock	      1.00    1.00	Very limited   Depth to   saturated zone   Depth to hard   bedrock	    1.00    0.64
Nahma	   40     	  Very limited   Depth to   saturated zone   Ponding   Depth to hard   bedrock	  1.00    1.00  0.46	  Very limited   Depth to   saturated zone   Depth to hard   bedrock   Ponding	  1.00    1.00 	Very limited   Depth to   saturated zone   Ponding   Depth to hard   bedrock	  1.00    1.00  0.46
158C: Munising, dissected, stony	:	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	      1.00    0.99	Very limited Depth to saturated zone Depth to thick cemented pan	      1.00    1.00	Very limited Depth to saturated zone Depth to thick cemented pan Slope	    1.00    0.99 
Abbaye, dissected, stony	   35         	  Very limited   Depth to   saturated zone   Depth to hard   bedrock	    1.00    0.29   	  Very limited   Depth to   saturated zone   Depth to hard   bedrock	    1.00    1.00 	  Very limited   Depth to   saturated zone   Slope   Depth to hard   bedrock	  1.00    0.50  0.29
160B: Paquin	   55     	Somewhat limited   Depth to thin   cemented pan   Depth to   saturated zone	0.50	  Very limited   Depth to   saturated zone   Depth to thin   cemented pan	  1.00    1.00	  Somewhat limited   Depth to thin   cemented pan   Depth to   saturated zone	1.00
Finch	45   45     	   Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    1.00	   Very limited   Depth to   saturated zone   Depth to thick   cemented pan	  1.00    1.00	   Very limited   Depth to   saturated zone   Depth to thick   cemented pan	  1.00    1.00

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings 	al
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1.C1D.							
161B: Yellowdog, stony	   50	  Somewhat limited	l I	  Very limited		  Somewhat limited	1
Tellowdog, Beolly	30	Large stones	0.50	Depth to hard	1.00	Large stones	0.50
	' 	Depth to hard	0.29	bedrock	1	Depth to hard	0.29
	ĺ	bedrock	İ	Large stones	0.50	bedrock	į
Buglimon atoms		 		 		     	
Buckroe, stony	<del>1</del> 0	Depth to hard	1.00	Very limited   Depth to hard	1.00	Very limited   Depth to hard	1.00
	 	bedrock		bedrock		bedrock	
	ĺ		į		į		į
165B: Chocolay, very stony	55	  Voru limited	 	  Very limited	l i	  Very limited	
Chocolay, very stony	55	Depth to	1.00	Depth to	1.00	Depth to	1.00
	 	saturated zone	1	saturated zone	1	saturated zone	1
	! 	Large stones	0.95	Depth to hard	1.00	Large stones	0.95
	! 	Depth to hard	0.71	bedrock	1	Depth to hard	0.71
	İ	bedrock	İ	Large stones	0.95	bedrock	İ
Waiska, very stony	   30	  Not limited		  Not limited		  Not limited	
					İ		İ
166:							!
Skandia	85	Very limited   Subsidence	1 00	Very limited	11 00	Very limited	
	 	Depth to	1.00	Subsidence Depth to	1.00	Subsidence Depth to	1.00
	 	saturated zone	1	saturated zone	1	saturated zone	1
	 	Organic matter	1.00	Organic matter	1.00	Organic matter	1.00
		content		content		content	
	İ	Ponding	1.00	Depth to hard	1.00	Ponding	1.00
	ĺ	Depth to hard	0.35	bedrock	ĺ	Depth to hard	0.35
		bedrock		Ponding	1.00	bedrock	
167:	 			 		 	
Skandia, stony	55	  Very limited	İ	  Very limited	i	  Very limited	i
	ĺ	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Organic matter	1.00	Organic matter	1.00	Organic matter	1.00
	 	content	1 00	content	11 00	content	
	 	Ponding Depth to hard	1.00	Depth to hard bedrock	1.00	Ponding Depth to hard	1.00
	 	bedrock		Ponding	1.00	bedrock	
Jacobsville, stony	35	_		Very limited	1	Very limited	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	 	Ponding	1.00	Depth to hard	1.00	Ponding	1.00
	! 	Depth to hard	0.06	bedrock		Depth to hard	0.06
		bedrock		Ponding	1.00	bedrock	
170B:	 	[ [		 		[ 	
Chocolay, very stony	90	  Very limited		  Very limited		  Very limited	
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone	İ	saturated zone	İ	saturated zone	j
		Large stones	0.95	Depth to hard	1.00	Large stones	0.95
	 	Large stones Depth to hard bedrock	0.95	Depth to hard   bedrock   Large stones	1.00    0.95	Large stones   Depth to hard   bedrock	0.95

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	1
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171B: Paavola, very stony	   90       	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    0.54	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    0.54
172D:	 		<u>.</u> !		<u> </u> 		į
Buckroe, very bouldery	   70     	  Very limited   Depth to hard   bedrock   Slope	  1.00    1.00	  Very limited   Depth to hard   bedrock   Slope	  1.00    1.00	   Very limited   Depth to hard   bedrock   Slope	  1.00    1.00
Rock outcrop	   15 	  Not rated 	   	  Not rated 	   	  Not rated 	   
172F: Buckroe, very bouldery	     70   	  Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	Very limited Slope Depth to hard bedrock	      1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	    1.00  1.00
Rock outcrop	   15 	  Not rated 	   	  Not rated 	   	  Not rated 	   
176B: Croswell	   50 	  Somewhat limited   Depth to   saturated zone	    0.39	  Very limited   Depth to   saturated zone	    1.00 	  Somewhat limited   Depth to   saturated zone	0.39
Kinross	   40   	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
181E: Frohling, dissected, stony	1	     Very limited   Depth to thick   cemented pan   Slope	        1.00	  -   Very limited   Depth to thick   cemented pan   Slope	        1.00	    Very limited   Slope   Depth to thick   cemented pan	      1.00  1.00
Tokiahok, dissected, stony		Very limited Slope Depth to thick cemented pan	    1.00  0.90	Very limited Depth to thick cemented pan Slope	    1.00    1.00	Very limited Slope Depth to thick cemented pan	    1.00  0.90
185B: McMaster	     90   	  Somewhat limited   Depth to   saturated zone	      0.39 	  Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Depth to   saturated zone	0.39
186B: Chatham, stony	85	  Not limited	<u> </u> 	  Not limited	 	  Not limited	į Į
186D: Chatham, stony	     85 	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope	      0.37	    Very limited   Slope	      1.00

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings   	al
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
187B:				 		 	
Reade	85	  Very limited	j	  Very limited	i	  Very limited	İ
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
188B:		 			İ	  -	Ì
Eben, stony	85	  Somewhat limited		  Somewhat limited		  Somewhat limited	
_	į	Large stones	0.68	Large stones	0.68	Large stones	0.68
188D:						 	
Eben, stony	90	!	!	Somewhat limited	į	Very limited	į
		Large stones	0.68	Large stones	0.68	Slope	1.00
		Slope 	0.37	Slope 	0.37	Large stones	0.68
188E:			į		į		į
Eben, stony	90	Very limited	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
		Slope   Large stones	0.68	Large stones	0.68	Slope   Large stones	0.68
0.1.5					İ		
191B: Ruse	   50	  Very limited		  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	İ	saturated zone	İ	saturated zone	İ	saturated zone	İ
		Depth to hard	1.00	Depth to hard	1.00	Depth to hard	1.00
		bedrock   Ponding	1.00	bedrock   Ponding	1.00	bedrock   Ponding	1.00
	į		į		į		į
Ensign	40	Very limited	:	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	İ	Depth to hard	1.00	Depth to hard	1.00	Depth to hard	1.00
	į	bedrock	j	bedrock	į	bedrock	j
		Organic matter	1.00			Organic matter	1.00
197B: Shoepac	50	  Somewhat limited		  Very limited		  Somewhat limited	
ысерие		Depth to	0.98	Depth to	1.00	Depth to	0.98
	į	saturated zone	į	saturated zone	į	saturated zone	į
Trenary	40	  Somewhat limited		  Not limited		  Somewhat limited	
•		Shrink-swell	0.01		į	Shrink-swell	0.01
198B:		 		 		 	
Shoepac	60	Somewhat limited		  Very limited	İ	  Somewhat limited	ĺ
		Depth to	0.98	Depth to	1.00		0.98
		saturated zone		saturated zone		saturated zone	1
Reade	30		:	  Very limited	1	  Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone	0.64	saturated zone	1 00	saturated zone	0.64
	 	Depth to hard bedrock	U.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
	1		1	1	1	1	1

Table 12a.--Building Site Development--Continued

and soil name	Pct. of map unit	basements	ut	Dwellings with   basements 		Small commercia   buildings   	11
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
200A: Charlevoix	     55 	  Very limited   Depth to   saturated zone	      1.00	    Very limited   Depth to   saturated zone	      1.00	    Very limited   Depth to   saturated zone	      1.00
Ensley	   30   	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
202B: Sauxhead, very stony	85	Very limited  Depth to saturated zone  Depth to hard bedrock  Depth to soft bedrock	  1.00    1.00    0.50	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Depth to soft   bedrock	  1.00    1.00    1.00	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Depth to soft   bedrock	  1.00    1.00    1.00
206B: Traunik	90	  Not limited		    Not limited		    Not limited	
206D: Traunik	     90 	    Somewhat limited   Slope	      0.16	    Somewhat limited   Slope	      0.16	    Very limited   Slope	      1.00
211B: Munising	   55   	   Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    0.99	   Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    1.00	   Very limited   Depth to   saturated zone   Depth to thick   cemented pan	  1.00    0.99
Abbaye	35   	Very limited	  1.00    0.29		  1.00    1.00	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    0.29
214B: Kalkaska	60	    Not limited		    Not limited		    Not limited	
Blue Lake	   30 	  Not limited 	   	  Not limited 	   	  Not limited 	
214D: Kalkaska	55	  Somewhat limited   Slope	0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
Blue Lake	   35 	  Somewhat limited   Slope	    0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
214E: Kalkaska	     55 	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00
Blue Lake	35 35	  Very limited   Slope	    1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	1
		Rating class and limiting features	Value	   Rating class and   limiting features	Value	Rating class and limiting features	Value
221B: Jeske	     40 	  Very limited   Depth to	      1.00	  Very limited   Depth to	      1.00	  Very limited   Depth to	      1.00
	       	saturated zone Depth to hard bedrock	  0.35     	saturated zone Depth to hard bedrock Depth to soft bedrock	  1.00    0.99	saturated zone Depth to hard bedrock	0.35
Au Train	30	Depth to	1.00	  Very limited   Depth to	1.00	  Very limited   Depth to	1.00
	   	saturated zone   Depth to soft   bedrock	0.50	saturated zone   Depth to hard   bedrock	1.00	saturated zone Depth to soft bedrock	1.00
	 	Depth to hard bedrock	0.29	Depth to soft bedrock	1.00	Depth to hard bedrock	0.29
Gongeau	   20   	  Very limited   Depth to   saturated zone   Ponding	1.00    1.00	  Very limited   Depth to   saturated zone   Depth to hard	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to soft	  1.00    1.00
	     	Depth to hard   bedrock   Depth to soft   bedrock	0.54    0.50 	bedrock   Depth to soft   bedrock   Ponding	  1.00    1.00	bedrock   Ponding   Depth to hard   bedrock	  1.00  0.54 
225B: Cusino	95	    Not limited		    Not limited		    Not limited	
225D: Cusino	     95 	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope	      0.37	    Very limited   Slope	1.00
226B: Kalkaska	50	    Not limited		    Not limited		    Not limited	
Cusino	   45 	  Not limited 	   	  Not limited 	   	  Not limited 	
226D: Kalkaska	   50 	  Somewhat limited   Slope	0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
Cusino	45	  Somewhat limited   Slope	0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
226E: Kalkaska	     50 	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00	    Very limited   Slope	1.00
Cusino	40	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
226F: Kalkaska	     50 	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00
Cusino	35	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	1

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings 	1
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
227A: Halfaday	     90   	    Somewhat limited   Depth to   saturated zone	      0.39	  Very limited   Depth to   saturated zone	      1.00	    Somewhat limited   Depth to   saturated zone	      0.39
232B: Shelldrake	     90	    Not limited 	     	    Not limited 	   	    Not limited 	
233B: Abbaye, very stony	   50     	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    0.29	  Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    1.00	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    0.29
Zeba, very stony	   35       	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    0.20	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    1.00	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    0.20
234A: Levasseur, very	   	   		 	   	   	
stony	55         	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Large stones	  1.00    1.00    0.85	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Large stones	  1.00    1.00    0.85	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Large stones	  1.00    1.00    0.85
Burt, very stony	   35       	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Ponding	  1.00    1.00    1.00	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Ponding	  1.00    1.00    1.00	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Ponding	  1.00    1.00    1.00
235B:		 				 	
Sauxhead, very stony	60	Depth to   saturated zone   Depth to hard   bedrock   Depth to soft   bedrock	  1.00    1.00    0.50	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Depth to soft   bedrock	  1.00    1.00    1.00	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Depth to soft   bedrock	  1.00    1.00    1.00
Burt, very stony	   30       	Very limited Depth to saturated zone Depth to hard bedrock Ponding	  1.00    1.00    1.00	saturated zone	  1.00    1.00    1.00	saturated zone	  1.00    1.00    1.00
236B: Waiska, extremely bouldery	       85	      Not limited	       	      Not limited 	       	      Not limited 	

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements	ı	Small commercia   buildings 	11
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
236D: Waiska, extremely bouldery	       85 	    Somewhat limited   Slope	        0.16	    Somewhat limited   Slope	        0.16	    Very limited   Slope	        1.00
237B: Chatham	65	  Not limited	<u> </u> 	  Not limited	į Į	  Not limited	į
Davies	   20     	Very limited   Depth to   saturated zone   Ponding   Large stones	  1.00    1.00  0.14	   Very limited   Depth to   saturated zone   Ponding   Large stones	  1.00    1.00  0.14	Very limited Depth to saturated zone Ponding Large stones	  1.00    1.00  0.14
239B:		 		 		 	
Longrie	50   	   Somewhat limited   Depth to hard   bedrock	0.06	   Very limited   Depth to hard   bedrock	1.00	Somewhat limited   Depth to hard   bedrock	0.06
Shingleton	40   	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Depth to hard   bedrock	1.00
240F:		 		 	1	 	
Trout Bay	30	Very limited Subsidence Depth to saturated zone Organic matter content Slope Depth to soft bedrock	  1.00  1.00    1.00    1.00  0.50	Very limited    Subsidence     Depth to     saturated zone     Corganic matter     content     Depth to hard     bedrock     Depth to soft     bedrock	  1.00  1.00    1.00    1.00	Very limited Subsidence Depth to saturated zone Organic matter content Depth to soft bedrock Slope	  1.00  1.00    1.00    1.00
		 		Dedrock		 	
Gongeau	25           	Very limited    Depth to   saturated zone   Depth to hard   bedrock   Depth to soft   bedrock	  1.00    0.54    0.50	Very limited    Depth to   saturated zone   Depth to hard   bedrock   Depth to soft   bedrock	  1.00    1.00    1.00	Very limited    Depth to   saturated zone     Depth to soft   bedrock     Depth to hard   bedrock     Slope	  1.00    1.00    0.54 
Shingleton	   20   	  Very limited   Slope   Depth to hard   bedrock	  1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	  1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	  1.00  1.00
Rock outcrop	     15			    Not rated		    Not rated	
241:		 		 		 	
Cathro	   55     	  Very limited   Subsidence   Depth to   saturated zone   Organic matter	  1.00  1.00    1.00	  Very limited   Subsidence   Depth to   saturated zone   Ponding	  1.00  1.00    1.00	  Very limited   Subsidence   Depth to   saturated zone   Organic matter	  1.00  1.00    1.00
		content   Ponding	1.00	  -	İ	content Ponding	1.00

Table 12a.--Building Site Development--Continued

and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercial   buildings 	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
241:	 	 		 		 	
Gay	35	Depth to	1.00		1.00		1.00
	 	saturated zone Ponding	1.00	saturated zone	1.00	saturated zone	1.00
242B:						 	
Kalkaska, severely burned	95	  Not limited		  Not limited		  Not limited	
242D:	 	 		 		 	
Kalkaska, severely burned	   95 	  Somewhat limited   Slope	0.37	  Somewhat limited   Slope	    0.37	  Very limited   Slope	1.00
242F:	 	 		 		 	
Kalkaska, severely burned	   90 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00
243: Markey	95	  Very limited		  Very limited		  Very limited	
	İ	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	 	saturated zone Ponding	1.00	saturated zone	1.00	saturated zone Ponding	1.00
245B:	 			 		 	
Trout Bay	40	Very limited	į	Very limited	İ	Very limited	į
		Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	 	Depth to	1.00	Depth to	1.00	Depth to	1.00
	 	saturated zone Organic matter	1.00	saturated zone Organic matter	1.00	saturated zone Organic matter	1.00
	 	content		content		content	1
	<u> </u>	Ponding	1.00	Depth to hard	1.00	Depth to soft	1.00
	ĺ	Depth to soft	0.50	bedrock	Ì	bedrock	ĺ
	 	bedrock 		Depth to soft bedrock	1.00 	Ponding 	1.00
Lupton	30	  Very limited		  Very limited		  Very limited	
	ĺ	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
		Depth to	1.00		1.00		1.00
	 	saturated zone		saturated zone	11 00	saturated zone	1 00
	 	Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
	 	Ponding	1.00	Ponding	1.00	Ponding	1.00
Gongeau	20	  Very limited		  Very limited		  Very limited	1
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to hard	1.00	Depth to soft	1.00
		Depth to hard	0.54	bedrock		bedrock	1
		bedrock		Depth to soft	1.00	Ponding	1.00
	 	Depth to soft bedrock	0.50	bedrock   Ponding	1.00	Depth to hard bedrock	0.54
246B:	 	 		 		 	1
		Not limited		Not limited		Not limited	

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	al
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
246D: Garlic	     90 	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope	      0.37	    Very limited   Slope	
246E: Garlic	     90 	    Very limited   Slope		    Very limited   Slope	1.00	    Very limited   Slope	      1.00
248B: Escanaba	50	    Not limited		    Not limited		    Not limited	
Greylock	40	  Not limited		  Not limited 		  Not limited 	
248D: Escanaba	50	  Somewhat limited   Slope	0.37	    Somewhat limited   Slope	0.37	    Very limited   Slope	1.00
Greylock	   40 	  Somewhat limited   Slope	0.37	  Somewhat limited   Slope	    0.37	  Very limited   Slope	1.00
248E: Escanaba	     50 	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00
Greylock	   40 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00
249B: Sauxhead	   55         	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Depth to soft   bedrock	    1.00    1.00    0.50	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Depth to soft   bedrock	    1.00    1.00    1.00		  1.00    1.00    1.00
Skandia	   35           	Very limited   Subsidence   Depth to   saturated zone   Organic matter   content   Ponding   Depth to hard   bedrock	  1.00  1.00    1.00    1.00  0.35	Very limited   Subsidence   Depth to   saturated zone   Organic matter   content   Depth to hard   bedrock   Ponding	  1.00  1.00    1.00    1.00	Very limited   Subsidence   Depth to   saturated zone   Organic matter   content   Ponding   Depth to hard   bedrock	  1.00  1.00    1.00    1.00
250B: Chocolay, extremely stony	       55 	    Very limited   Depth to   saturated zone	        1.00	    Very limited   Depth to   saturated zone	        1.00	    Very limited   Depth to   saturated zone	        1.00
	     	Large stones Depth to hard bedrock	0.95  0.71	Depth to hard   bedrock   Large stones	1.00    0.95	Large stones Depth to hard bedrock	0.95 0.71

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings 	11
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
250B: Jacobsville, extremely stony	       30       	   Very limited   Depth to   saturated zone   Ponding   Depth to hard   bedrock	      1.00    1.00  0.06	  Very limited   Depth to   saturated zone   Depth to hard   bedrock   Ponding	      1.00    1.00	  Very limited   Depth to   saturated zone   Ponding   Depth to hard   bedrock	      1.00    1.00  0.06
251B: Greylock	     90	    Not limited	   	    Not limited	   	    Not limited	   
251D: Greylock	     85 	  Somewhat limited   Slope	      0.37	    Somewhat limited   Slope 	      0.37	    Very limited   Slope	1.00
252A: Finch	   50     	Very limited Depth to saturated zone Depth to thick cemented pan	  1.00    1.00	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	  1.00    1.00
Kinross	   40     	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	   Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	   Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
254C: Kalkaska, dissected	     55 	  Not limited 		    Not limited 		    Somewhat limited   Slope	    0.88
Blue Lake, dissected	   35 	  Not limited 	   	  Not limited 	   	  Somewhat limited   Slope	0.88
254E: Kalkaska, dissected	     55 	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00	    Very limited   Slope	1.00
Blue Lake, dissected	35	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
254F: Kalkaska, dissected	     55 	  Very limited   Slope	1.00	    Very limited   Slope	1.00	    Very limited   Slope	1.00
Blue Lake, dissected	   35 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
255D: Wallace	     95     	Somewhat limited   Depth to thin   cemented pan   Slope	      0.50    0.01	  Very limited   Depth to thin   cemented pan   Slope	      1.00    0.01	  Very limited   Depth to thin   cemented pan   Slope	    1.00    1.00
256B: Whitewash	     95	    Not limited	     	    Not limited	     	    Not limited 	

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings 	al
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Valu
266A:		 		 		 	
Spot	50	  Very limited		  Very limited	i	  Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Ponding	1.00	Depth to thin	1.00	Depth to thin	1.00
		Organic matter	1.00	cemented pan		cemented pan	
	   	content Depth to thin cemented pan	0.50	Ponding   	1.00	Ponding   Organic matter   content	1.00  1.00 
Finch	1 40	  Very limited		  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	İ	saturated zone	İ	saturated zone	į	saturated zone	j
		Depth to thick	1.00	Depth to thick	1.00	Depth to thick	1.00
		cemented pan		cemented pan	ļ	cemented pan	
267A:		l I		 		 	
Finch	85	  Very limited		  Very limited	l	  Very limited	1
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	İ	saturated zone	i	saturated zone	į	saturated zone	i
	İ	Depth to thick	1.00	Depth to thick	1.00	Depth to thick	1.00
		cemented pan		cemented pan	ļ	cemented pan	
268C: Munising, calcareous substratum, dissected	j	        Very limited	     	        Very limited	     	        Very limited	
dibbected	10	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
	j	Depth to thick	0.99	Depth to thick	1.00	Depth to thick	0.99
		cemented pan		cemented pan		cemented pan	
						Slope	0.50
Frohling, calcareous substratum,	j	  -  -	 	  - 	   	  -  -	
dissected	30	Somewhat limited   Depth to thick	0.90	Very limited   Depth to thick	1.00	Somewhat limited   Depth to thick	0.90
		cemented pan	0.90	cemented pan	1	cemented pan	0.90
					i	Slope	0.50
	İ	j	į		į	_	i
Cookson, dissected	20	•		Very limited		Somewhat limited	!
		Depth to hard bedrock	0.06	Depth to hard bedrock	1.00	Slope	0.50
		bedrock		bedrock		Depth to hard bedrock	0.06
			i		İ		i
269E:							
Frohling, calcareous							
substratum,							1
dissected	50	Slope	1.00	Very limited   Depth to thick	1.00	Very limited   Slope	1.00
		Depth to thick	0.90	cemented pan		Depth to thick	0.90
	İ	cemented pan	i	Slope	1.00	cemented pan	i
Garlic, dissected	20	Very limited   Slope	1.00	Very limited	1.00	Very limited	1.00
		   probe	<b></b> 00	Slope 	1 - 00	Slope 	1
Cookson, dissected	20	  Very limited		  Very limited	i	  Very limited	i
	İ	Slope	1.00	Depth to hard	1.00	Slope	1.00
	İ	Depth to hard bedrock	0.06	bedrock	İ	Depth to hard bedrock	0.06

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings   	11
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
272C: Munising, calcareous substratum,	     			 	     	 	     
dissected	40       	Very limited  Depth to  saturated zone  Depth to thick  cemented pan	  1.00    0.99 	Very limited   Depth to   saturated zone   Depth to thick   cemented pan	  1.00    1.00 	Very limited   Depth to   saturated zone   Depth to thick   cemented pan   Slope	  1.00    0.99 
Yalmer, calcareous substratum, dissected	       30	Very limited		      Very limited	   	      Very limited	   
dissected	30     	Depth to saturated zone Depth to thick	  1.00    0.65	Depth to   saturated zone   Depth to thick	  1.00    1.00	Depth to   saturated zone   Slope	  1.00    0.88
	   	cemented pan	   	cemented pan	   	Depth to thick cemented pan	0.65
Frohling, calcareous substratum, dissected	   20   	Somewhat limited Depth to thick cemented pan	      0.90 	  Very limited   Depth to thick   cemented pan	      1.00 	  Somewhat limited   Depth to thick   cemented pan   Slope	    0.90    0.88
275B: Munising, calcareous	   			   	   	   	   
substratum	50       	Very limited  Depth to  saturated zone  Depth to thick  cemented pan	  1.00    0.95	Very limited   Depth to   saturated zone   Depth to thick   cemented pan	  1.00    1.00	Very limited   Depth to   saturated zone   Depth to thick   cemented pan	  1.00    0.95
Cookson	   40     	Somewhat limited Depth to hard bedrock	    0.06 	  Very limited   Depth to hard   bedrock	    1.00 	  Somewhat limited   Depth to hard   bedrock	    0.06 
281E: Mongo, dissected	   95   	Very limited Slope Shrink-swell	    1.00  1.00	  Very limited   Slope 	    1.00	  Very limited   Slope   Shrink-swell	  1.00  1.00
282B: Furlong	   50   	Somewhat limited Depth to hard bedrock	    0.97	  Very limited   Depth to hard   bedrock	    1.00	  Somewhat limited   Depth to hard   bedrock	0.97
Shingleton	   40   	Very limited  Depth to hard  bedrock	1.00	  Very limited   Depth to hard   bedrock	    1.00 	  Very limited   Depth to hard   bedrock	  1.00
282D: Furlong	   50 	Somewhat limited  Depth to hard  bedrock	      0.97	    Very limited   Depth to hard   bedrock	      1.00	    Very limited   Slope   Depth to hard	    1.00  0.97
	į	Slope	0.37	Slope	0.37	bedrock	j

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercial   buildings 	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and   limiting features	Value
282D: Shingleton	   40     	   Very limited   Depth to hard   bedrock   Slope	      1.00    0.37	   Very limited   Depth to hard   bedrock   Slope	    1.00    0.37	  Very limited   Depth to hard   bedrock   Slope	    1.00    1.00
284B: Steuben	     40   	  Somewhat limited   Depth to thick   cemented pan	      0.99 	  Very limited   Depth to thick   cemented pan	      1.00	  Somewhat limited   Depth to thick   cemented pan	      0.99
Blue Lake	30	  Not limited	   	  Not limited		  Not limited	
Kalkaska	20	  Not limited		  Not limited		  Not limited	
284D: Steuben	   40     	  Somewhat limited   Depth to thick   cemented pan   Slope	    0.99    0.37	  Very limited   Depth to thick   cemented pan   Slope	    1.00    0.37	  Very limited   Slope   Depth to thick   cemented pan	  1.00  0.99
Blue Lake	25	  Somewhat limited   Slope	0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
Kalkaska	25	Somewhat limited   Slope	0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
284E: Steuben	   40   	  Very limited   Slope   Depth to thick   cemented pan	      1.00  0.99	  Very limited   Slope   Depth to thick   cemented pan	      1.00  1.00	  Very limited   Slope   Depth to thick   cemented pan	    1.00  0.99
Blue Lake	   30 	  Very limited   Slope	    1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
Kalkaska	   20 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
285B: Halfaday	     50 	  Somewhat limited   Depth to   saturated zone	      0.39	  Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Depth to   saturated zone	0.39
Kinross	   40     	   Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00
286B: Greylock	     50	    Not limited		    Not limited		    Not limited	
Cookson	   40   	  Somewhat limited   Depth to hard   bedrock	    0.06 	  Very limited   Depth to hard   bedrock	    1.00   	  Somewhat limited   Depth to hard   bedrock	0.06

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
287B: McMaster	     55   	  Somewhat limited   Depth to   saturated zone	      0.39	  Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Depth to   saturated zone	
Davies	   35       	  Very limited   Depth to   saturated zone   Ponding   Large stones	  1.00    1.00  0.14	  Very limited   Depth to   saturated zone   Ponding   Large stones	  1.00    1.00  0.14	   Very limited   Depth to   saturated zone   Ponding   Large stones	  1.00    1.00  0.14
290A: Namur, very stony	   50   	  Very limited   Depth to hard   bedrock	    1.00	  Very limited   Depth to hard   bedrock	    1.00	  Very limited   Depth to hard   bedrock	1.00
Ruse, very stony	   40       	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Ponding	  1.00    1.00    1.00	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Ponding	  1.00    1.00    1.00	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Ponding	  1.00    1.00 
292B: Mashek, sandy substratum	       90 	  Very limited   Depth to   saturated zone	        1.00	Very limited Depth to saturated zone	        1.00	  Very limited   Depth to   saturated zone	      1.00
296D: Islandlake	     55 	    Somewhat limited   Slope	0.16	    Somewhat limited   Slope	      0.16	  Very limited   Slope	1.00
McMillan	   35 	  Somewhat limited   Slope	0.16	  Somewhat limited   Slope	0.16	  Very limited   Slope	1.00
296E: Islandlake	     55 	    Very limited   Slope	1.00	    Very limited   Slope	1.00	    Very limited   Slope	      1.00
McMillan	   35 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00
297B: Rubicon, severely burned	       95	      Not limited	     	      Not limited	     	    Not limited	
297D: Rubicon, severely burned	       95 	    Somewhat limited   Slope		    Somewhat limited   Slope	      0.26	    Very limited   Slope	1.00
298B: Wurtsmith	     55 	    Somewhat limited   Depth to   saturated zone	      0.39	  Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Depth to   saturated zone	      0.39

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	basements	ut	Dwellings with basements		Small commercia   buildings 	al
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
298B: Deford	     35   	    Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	    Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	    Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
299F: Shelldrake	     99 	   	į Į	    Very limited   Slope	į Į	    Very limited   Slope	1.00
300F: Shelldrake	     61 	  Very limited   Slope	1.00	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00
Dune land	38	  Not rated		  Not rated		  Not rated	
301F: Cookson, dissected	     55   	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.06	  Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.06
Nykanen, dissected	   35           		  1.00  1.00      0.84    0.50	Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock   Depth to soft   bedrock	  1.00  1.00    1.00    1.00	Very limited   Slope   Depth to   saturated zone   Depth to soft   bedrock   Depth to hard   bedrock	  1.00  1.00    1.00    0.84
302B: Dillingham	     45 	    Not limited   	     	    Somewhat limited   Depth to thin   cemented pan	      0.99	    Not limited   	       
Kalkaska	40	  Not limited		  Not limited		  Not limited	
302D: Dillingham	   52   	  Somewhat limited   Slope 	    0.37 		    0.99    0.37	  Very limited   Slope 	    1.00 
Kalkaska	   45 	  Somewhat limited   Slope	0.37	  Somewhat limited   Slope	    0.37	  Very limited   Slope	    1.00
302E: Dillingham	   50   	  Very limited   Slope 	      1.00 	  Very limited   Slope   Depth to thin   cemented pan	      1.00  0.99	  Very limited   Slope 	    1.00
Kalkaska	   40 	  Very limited   Slope	1.00	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00

Table 12a.--Building Site Development--Continued

	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings 	1
	   	Rating class and limiting features	Value	Rating class and limiting features		Rating class and limiting features	Value
02F: Dillingham	     50     	  Very limited   Slope 	      1.00   	  Very limited   Slope   Depth to thin   cemented pan	      1.00  0.99	    Very limited   Slope 	      1.00
Kalkaska	40	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
03B: Kiva	     55	    Not limited		    Not limited		    Not limited	
Trenary	30	Somewhat limited   Shrink-swell	0.01	  Not limited 	   	  Somewhat limited   Shrink-swell	0.01
03D: Kiva	     55 	  Somewhat limited   Slope	0.16	    Somewhat limited   Slope	      0.16	  Very limited   Slope	1.00
Trenary	   30   	  Somewhat limited   Slope   Shrink-swell	  0.16  0.01	  Somewhat limited   Slope 	    0.16 	  Very limited   Slope   Shrink-swell	  1.00  0.01
03E: Kiva	     55 	  Very limited   Slope	1.00	  Very limited   Slope	      1.00	  Very limited   Slope	1.00
Trenary	   30   	  Very limited   Slope   Shrink-swell	  1.00  0.01	  Very limited   Slope 	    1.00	  Very limited   Slope   Shrink-swell	  1.00  0.01
05B: Wurtsmith	     55   	  Somewhat limited   Depth to   saturated zone	      0.39	  Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Depth to   saturated zone	      0.39
Meehan	   40   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	1.00
306C: Deerton, dissected	   35       	  Somewhat limited   Depth to hard   bedrock 	    0.01   	  Very limited	    1.00    0.84	  Somewhat limited   Slope   Depth to hard   bedrock	    0.50  0.01
Tokiahok, dissected	   30     	Somewhat limited   Depth to thick   cemented pan   Slope	  0.90    0.16	  Very limited   Depth to thick   cemented pan   Slope	  1.00    0.16	Very limited   Slope   Depth to thick   cemented pan	  1.00  0.90
Jeske, dissected	   20         	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    0.35   		  1.00    1.00    0.99	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Slope	  1.00    0.35    0.12

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	   Dwellings with   basements 		   Small commercia   buildings 	1
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
307B: Rubicon, very deep water table	       95	      Not limited	     	      Not limited	     	      Not limited	
307D: Rubicon, very deep water table	       95 	      Somewhat limited   Slope 	        0.37	      Somewhat limited   Slope	        0.37	      Very limited   Slope	1.00
308B: Rubicon	   55	    Not limited	 	    Not limited	j 	    Not limited	į Į
Sultz	40	  Not limited		  Not limited		  Not limited	
308D: Rubicon	     55 	  Somewhat limited   Slope	0.37	    Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
Sultz	   40 	  Somewhat limited   Slope	    0.37	  Somewhat limited   Slope	    0.37	  Very limited   Slope	    1.00
309B: Rubicon, deep water table	       95   	    Not limited   	         	    Somewhat limited   Depth to   saturated zone	        0.47	      Not limited   	
309D: Rubicon, deep water table	     95     	    Somewhat limited   Slope 	        0.37	    Somewhat limited   Depth to   saturated zone   Slope	      0.47    0.37	    Very limited   Slope 	      1.00
310B: Kalkaska, burned	90	    Not limited		    Not limited		    Not limited	
310D: Kalkaska, burned	     95 	    Somewhat limited   Slope	0.37	    Somewhat limited   Slope	      0.37	  Very limited   Slope	1.00
310E: Kalkaska, burned	     95 	  Very limited   Slope	1.00	    Very limited   Slope	      1.00	  Very limited   Slope	1.00
311B: Kalkaska, very deep water table, burned	       95	  -    Not limited	     	  -    Not limited	     	      Not limited	     
311D: Kalkaska, very deep water table, burned	       95 	      Somewhat limited   Slope	        0.37	      Somewhat limited   Slope	        0.37	      Very limited   Slope	1.00
312B: Islandlake, burned	   95	    Not limited	   	    Not limited	     	    Not limited	 
312D: Islandlake, burned	     95 	  Somewhat limited   Slope	      0.16	  Somewhat limited   Slope	      0.16	    Very limited   Slope	1.00

Table 12a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	basements	ut	Dwellings with basements		Small commercia   buildings	1
	unit   	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
313B: Kalkaska, deep water table, burned	:	      Not limited 	     	      Not limited 	       	      Not limited 	       
314B: Blue Lake, very deep water table, burned	:	    Not limited 	     	    Not limited 	     	    Not limited 	 
315B: Blue Lake, deep water table, burned	     95   	    Not limited 	       	  Somewhat limited   Depth to   saturated zone	      0.47 	 	
316B: Blue Lake, burned	     95 	    Not limited 	     	    Not limited 	     	    Not limited 	     
316D: Blue Lake, burned	   95 	  Somewhat limited   Slope	0.37	  Somewhat limited   Slope	0.37	  Very limited   Slope	1.00
317B: Kalkaska, very deep water table	       95	      Not limited 	     	      Not limited 	     	      Not limited 	       
317D: Kalkaska, very deep water table	     95 	    Somewhat limited   Slope	      0.37	    Somewhat limited   Slope	      0.37	    Very limited   Slope	      1.00
318B: Islandlake, very deep water table	       95	    Not limited	     	      Not limited	     	      Not limited	     
318D: Islandlake, very deep water table	     95 	    Somewhat limited   Slope	      0.16	    Somewhat limited   Slope	      0.16	    Very limited   Slope	
319B: Islandlake	     95 	    Not limited 	   	    Not limited 		    Not limited 	
319D: Islandlake	     95 	  Somewhat limited   Slope	    0.16	  Somewhat limited   Slope	0.16	  Very limited   Slope	1.00
319E: Islandlake	     95 	  Very limited   Slope	1.00	    Very limited   Slope	1.00	    Very limited   Slope	1.00
319F: Islandlake	     95 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	    Very limited   Slope	1.00
320B: Kalkaska, deep water table		      Not limited 	       	    Somewhat limited   Depth to   saturated zone	        0.47	      Not limited   	         

Table 12a.--Building Site Development--Continued

Map symbol	Pct.	,	ut	Dwellings with		Small commercial		
and soil name	of	basements		basements		buildings		
	map  unit	  -				 		
	unit		1 7	1	1		1	
	!	Rating class and	Value		Value		Valu	
	<u> </u>	limiting features	<u> </u>	limiting features	<u> </u>	limiting features	1	
321B:								
Kalkaska	50	Not limited		Not limited		Not limited		
Deerton	45	  Somewhat limited		  Very limited		  Somewhat limited		
		Depth to hard	0.01	Depth to hard	1.00	Depth to hard	0.01	
	İ	bedrock	İ	bedrock	İ	bedrock	İ	
	İ	ĺ	İ	Depth to soft	0.84	]	İ	
		1		bedrock		 		
321D:		 		 		 		
Kalkaska	50	Somewhat limited		Somewhat limited		Very limited		
		Slope	0.37	Slope	0.37	Slope	1.00	
Deerton	45	  Somewhat limited		  Very limited		  Very limited		
		Slope	0.37	Depth to hard	1.00	Slope	1.00	
		Depth to hard	0.01	bedrock		Depth to hard	0.01	
		bedrock		Depth to soft	0.84	bedrock		
				bedrock				
				Slope	0.37		1	

### Table 12b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit		reets	Shallow excavations     		
		Rating class and limiting features	Value	Rating class and limiting features	Value	
10: Beaches	    100	    Not rated 	     	    Not rated 		
11C: Deer Park	90	  Not limited	   	  Very limited   Cutbanks cave	1.00	
11E: Deer Park	     95   	  Very limited   Slope 	      1.00	  Very limited   Cutbanks cave   Slope	    1.00  1.00	
11F: Deer Park	     98   	  Very limited   Slope 	      1.00	  Very limited   Slope   Cutbanks cave	  1.00  1.00	
12B: Rubicon	     90 	    Not limited	   	  Very limited   Cutbanks cave	1.00	
12D: Rubicon	     95   	  Somewhat limited   Slope 	      0.37	  Very limited   Cutbanks cave   Slope	    1.00  0.37	
12E: Rubicon	     95   	  Very limited   Slope 	      1.00	  Very limited   Slope   Cutbanks cave	    1.00  1.00	
13B: Kalkaska	     94 	    Not limited 	     	  Very limited   Cutbanks cave	1.00	
13D: Kalkaska	     96   	  Somewhat limited   Slope	      0.37	  Very limited   Cutbanks cave   Slope	    1.00  0.37	
13E: Kalkaska	    100   	  Very limited   Slope 	      1.00	  Very limited   Slope   Cutbanks cave	    1.00  1.00	
15A: Croswell	   92     	  Somewhat limited   Depth to   saturated zone	      0.19 	  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00	

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct.	Local roads and st	reets	Shallow excavati	ons
and soil name	map	 		 	
	unit	! 		 	
		Rating class and	Value	Rating class and	Value
		limiting features		limiting features	
16A: Paquin	90	  Somewhat limited		  Very limited	
		Depth to thin	1.00	_	1.00
	i	cemented pan	į	cemented pan	İ
	ĺ	Depth to	0.19	Depth to	1.00
		saturated zone		saturated zone	
		l		Cutbanks cave	1.00
17A:		 			
Au Gres	92	Very limited	į	Very limited	İ
	İ	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Frost action	0.50	Cutbanks cave	1.00
18:		 		[ 	
Kinross	92	  Very limited	į	  Very limited	į
		Depth to	1.00	_	1.00
		saturated zone		saturated zone	
		Ponding	1.00	Cutbanks cave	1.00
		Frost action	0.50	Ponding	1.00
19:	İ	 			i
Deford	92	Very limited	į	Very limited	j
į Į		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Ponding	1.00	Cutbanks cave	1.00
		Frost action	0.50	Ponding	1.00
21A:	İ		İ		İ
Ingalls	90	Very limited		Very limited	
		Depth to	1.00	Depth to	1.00
		saturated zone Frost action	0.50	saturated zone Cutbanks cave	1.00
24B:					
Munising	90	Very limited		Very limited	11 00
		Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
		Depth to thick	0.99	Depth to	1.00
	i	cemented pan		saturated zone	i
	İ	Frost action	0.50	Dense layer	0.50
	ļ			Cutbanks cave	0.10
25B:		 		 	
Munising	55	  Very limited		  Very limited	i
-	İ	Depth to	1.00	Depth to thick	1.00
		saturated zone		cemented pan	
		Depth to thick	0.99	Depth to	1.00
		cemented pan		saturated zone	
		Frost action	0.50	Dense layer Cutbanks cave	0.50
Yalmer	30	Very limited		Very limited	
		Depth to	1.00		1.00
		saturated zone		saturated zone	
				Cutbanks cave	1.00
		 		Depth to thin	0.90
	1	 	I	cemented pan Dense layer	0.50
	1	I	1	Dempe rayer	10.50

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	Local roads and st	reets	Shallow excavati	ons
	unit				
	 	Rating class and   limiting features	Value	Rating class and limiting features	Value
25D:	 	 			
Munising	55	  Very limited	İ	  Very limited	
		Depth to	1.00	Depth to thick	1.00
		saturated zone		cemented pan	
	 	Depth to thick	0.99	Depth to saturated zone	1.00
	 	cemented pan Frost action	0.50	Dense layer	0.50
		Slope	0.37	Slope	0.37
	İ	   	į	Cutbanks cave	0.10
Yalmer	   30	  Very limited		  Very limited	
	ĺ	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
	 	Slope	0.37	Cutbanks cave	1.00
	 	 	 	Depth to thin cemented pan	0.90
				Dense layer	0.50
	į		į	Slope	0.37
31D:	 				
Trenary    	85	Somewhat limited		Somewhat limited	
		Frost action	0.50	Dense layer	0.50
	 	Slope   Shrink-swell	0.16	Slope   Cutbanks cave	0.16
33: Ensley	   90	  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00
	İ	saturated zone	į	saturated zone	į
		Frost action	1.00	Cutbanks cave	1.00
	 	Ponding 	1.00	Ponding 	1.00
35B:					į
Munising, calcareous				 	
substratum	<b>4</b> 0 	Very limited   Depth to	1.00	Very limited   Depth to thick	1.00
		saturated zone		cemented pan	
	ĺ	Depth to thick	0.95	Depth to	1.00
		cemented pan		saturated zone	
		· -			
	   	Frost action	0.50	Cutbanks cave Dense layer	1.00
	   	· -	0.50		
Yalmer, calcareous		Frost action   	;   	Dense layer	
Yalmer, calcareous substratum	         30	Frost action	     	Dense layer Very limited	0.50
	         30	Frost action   	;   	Dense layer	
	         30	Frost action  Very limited  Depth to	     	Dense layer  Very limited  Depth to thick  cemented pan  Depth to	0.50
	       30	Frost action  Very limited  Depth to saturated zone	        1.00	Dense layer  Very limited  Depth to thick  cemented pan  Depth to  saturated zone	0.50        1.00    1.00
	             	Frost action  Very limited  Depth to saturated zone Depth to thick	        1.00	Dense layer  Very limited  Depth to thick  cemented pan  Depth to  saturated zone  Cutbanks cave	0.50      1.00    1.00
	       30       	Frost action  Very limited  Depth to saturated zone Depth to thick	        1.00	Dense layer  Very limited  Depth to thick  cemented pan  Depth to  saturated zone	0.50        1.00    1.00
	         	Frost action  Very limited  Depth to saturated zone Depth to thick	        1.00	Dense layer  Very limited  Depth to thick  cemented pan  Depth to  saturated zone  Cutbanks cave	0.50      1.00    1.00
substratum	           	Frost action  Very limited  Depth to  saturated zone  Depth to thick  cemented pan	      1.00    0.65     	Dense layer  Very limited Depth to thick cemented pan Depth to saturated zone Cutbanks cave Dense layer  Very limited	0.50      1.00  1.00    1.00  0.50
substratum Frohling, calcareous	           	Frost action  Very limited  Depth to  saturated zone  Depth to thick  cemented pan  Somewhat limited  Depth to thick	        1.00	Dense layer  Very limited Depth to thick cemented pan Depth to saturated zone Cutbanks cave Dense layer  Very limited Depth to thick	0.50      1.00    1.00
substratum Frohling, calcareous	           	Frost action  Very limited  Depth to  saturated zone  Depth to thick  cemented pan	      1.00    0.65     	Dense layer  Very limited Depth to thick cemented pan Depth to saturated zone Cutbanks cave Dense layer  Very limited	0.50      1.00  1.00    1.00  0.50

Table 12b.--Building Site Development--Continued

Map symbol and soil name	of	Local roads and st	reets	Shallow excavati	ons
	map  unit			l	
	unii c   	   Rating class and   limiting features	Value	Rating class and limiting features	Value
37B: Grand Sable	   90 	  Not limited 	     	  Very limited   Cutbanks cave	1.00
37E:	 	 	1		
Grand Sable	98   	Very limited   Slope	1.00	Very limited   Slope   Cutbanks cave	  1.00  1.00
38B: Rhody	60	  Very limited	1	Very limited	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00
	İ	Ponding	1.00	Ponding	1.00
	 			Depth to hard bedrock	0.99
	   	 	   	Depth to soft bedrock	0.06
Towes	30	  Very limited		  Very limited	i
		Depth to	1.00	-	1.00
		saturated zone		bedrock	1 00
	 	Frost action Depth to hard	1.00	Depth to saturated zone	1.00
		bedrock		Cutbanks cave	1.00
		 	 	Depth to soft bedrock	0.79
40B:					
Waiska, very stony	90 	Not limited		Very limited Cutbanks cave	1.00
42:	 	 	1		
Davies	90	  Very limited	i	  Very limited	
	İ	Depth to	1.00	_	1.00
		saturated zone		saturated zone	
	 	Frost action   Ponding	1.00	Cutbanks cave Ponding	1.00
		Large stones	0.14	Large stones	0.14
46: Jacobsville, very	   	 	   		
stony	90	  Very limited		  Very limited	i
-	 	Depth to saturated zone	1.00	bedrock	1.00
		Frost action	1.00	Depth to	1.00
	 	Ponding Depth to hard	1.00  0.06	saturated zone Ponding	1.00
	   	bedrock		Cutbanks cave	0.10
47C: Deerton	     55	    Somewhat limited		    Very limited	
	İ	Depth to hard	0.01	_	1.00
		bedrock		bedrock	
	 	Slope	0.01	Cutbanks cave Depth to soft	1.00
	 	 		bedrock	0.84
	1	!	!	Slope	0.01

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	 	reets	Shallow excavati   	ons
	unit 	Rating class and	Value	Rating class and	Value
	<u> </u>	limiting features	<u> </u>	limiting features	
47C:	 				
Au Train	30	Very limited   Depth to	1.00	Very limited Depth to hard	1.00
	   	saturated zone Depth to soft bedrock	1.00	bedrock   Depth to soft   bedrock	1.00
	   	Depth to hard bedrock	0.29	Depth to saturated zone	1.00
47E:	i I	 	į į	 	İ
Deerton	55	  Very limited	İ	  Very limited	İ
	 	Slope Depth to hard	1.00	bedrock	1.00
		bedrock		Cutbanks cave	1.00
	   	 		Slope Depth to soft bedrock	1.00
		 		Dedrock	i
Au Train	30	Very limited   Depth to	1.00	-	1.00
	 	saturated zone Depth to soft	1.00	bedrock   Depth to soft	1.00
	 	bedrock   Slope	0.63	bedrock   Depth to	1.00
	   	Depth to hard bedrock	0.29	saturated zone   Slope	0.63
48:				22000	
Burt	   90 	  Very limited   Depth to hard	1.00	  Very limited   Depth to hard	1.00
	į	bedrock	į	bedrock	į
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	   	Ponding   Frost action	1.00	Ponding	1.00
405		Frost action			
49B: Cookson	90	  Somewhat limited		  Very limited	
	 	Frost action   Depth to hard	0.50	Depth to hard bedrock	1.00
	   	bedrock		Cutbanks cave	0.10
51:			į		
Nahma	50 	Very limited   Depth to	1.00	Very limited   Depth to hard	1.00
	İ	saturated zone		bedrock	
		Frost action	1.00		1.00
	 	Ponding Depth to hard	1.00	'	1.00
	   	bedrock		Ponding	1.00
Ruse	40	Very limited	1	  Very limited	
	 	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to	1.00		1.00
	 	saturated zone Frost action	1.00	saturated zone Ponding	1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	Local roads and st   	reets	Shallow excavati   	ons
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Valu
52B:		 		 	
Summerville	85	Very limited	İ	Very limited	ĺ
	İ	Depth to hard	1.00	Depth to hard	1.00
		bedrock		bedrock	
		Frost action	0.50	Cutbanks cave	0.10
57:					
Carbondale	30	Very limited		Very limited	
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Subsidence	1.00	Organic matter	1.00
 		Frost action	1.00	content	
		Ponding	1.00	Ponding	1.00
Lupton	30	  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Subsidence	1.00	Organic matter	1.00
		Frost action	1.00	content	
		Ponding	1.00	Ponding	1.00
Tawas	30	  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Subsidence	1.00	Cutbanks cave	1.00
		Frost action	1.00	Ponding	1.00
		Ponding 	1.00	Organic matter content	1.00
	į		į		į
58: Dawson	30	  Very limited		  Very limited	
	i	Depth to	1.00	Depth to	1.00
	İ	saturated zone	İ	saturated zone	İ
	İ	Subsidence	1.00	Cutbanks cave	1.00
		Frost action	1.00	Ponding	1.00
		Ponding	1.00	Organic matter	1.00
				content	
Greenwood	30	  Very limited		  Very limited	
	İ	Depth to	1.00	Depth to	1.00
	İ	saturated zone	İ	saturated zone	ĺ
		Subsidence	1.00	Organic matter	1.00
		Frost action	1.00	content	
		Ponding	1.00	Ponding	1.00
Loxley	30	  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Subsidence	1.00	Organic matter	1.00
		Frost action	1.00	content	
	1	Ponding	1.00	Ponding	1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	Local roads and st   	reets	Shallow excavati   	ons
	unit				
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
59:				l	
Chippeny	   55	  Very limited		  Very limited	
on-ppoint		Depth to	1.00	_	1.00
	İ	saturated zone	İ	bedrock	i
	İ	Subsidence	1.00	Depth to	1.00
		Frost action	1.00		
		Ponding	1.00		1.00
	 	Depth to hard bedrock	0.64	Organic matter	1.00
		Dedrock		Cutbanks cave	0.10
Nahma	   30	  Very limited		  Very limited	
		Depth to	1.00		1.00
		saturated zone		bedrock	1 00
	 	Frost action   Ponding	1.00	Depth to saturated zone	1.00
	 	Depth to hard	0.46	!	1.00
	į	bedrock		Ponding	1.00
60:	 	 		 	
Histosols	50	Very limited		Very limited	
	 	Ponding	1.00	Ponding	1.00
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	 	Subsidence	1.00	Organic matter	1.00
		Frost action	1.00	content	
Aquents	   50	  Very limited		  Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to	1.00	Depth to	1.00
	 	saturated zone Frost action	1.00	saturated zone	
61: Pits	    100	    Not rated		    Not rated	   
62F:	 	 		 	
Udipsamments	50 	Not rated 		Not rated 	
Udorthents	50 	Not rated 		Not rated 	
64B: Kiva	   90	    Not limited	İ	    Very limited	İ
			į	<u>-</u>	1.00
64D:					
Kiva	90	Somewhat limited   Slope	0.16	Very limited   Cutbanks cave	1.00
		Slope		Slope	0.16
65D:	 	 		 	
Jeske, bedrock		[	[		[
terrace	45	Very limited	:	Very limited	
		Depth to	1.00		1.00
	 	saturated zone Frost action	0.50	bedrock Depth to	1.00
	 	Depth to hard	0.35	saturated zone	1.00
		bedrock		Cutbanks cave	1.00
	İ	İ	į	Depth to soft	0.99

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	 	reets	Shallow excavati	ons.
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
65D: Gongeau, bedrock					
terrace	25	  Very limited		  Very limited	
		Depth to	1.00	Depth to hard	1.00
	į	saturated zone	İ	bedrock	i
		Depth to soft	1.00	Depth to soft	1.00
		bedrock		bedrock	
		Frost action	1.00	Depth to	1.00
		Depth to hard bedrock	0.54	saturated zone	
Deerton, bedrock	 	 		 	
terrace	20	Somewhat limited		Very limited	
		Slope	0.84	Depth to hard	1.00
		Depth to hard bedrock	0.01	bedrock Cutbanks cave	1.00
		Dedlock		Depth to soft	0.84
				bedrock	
	 		į	Slope	0.84
55F:					
Jeske, bedrock terrace	   4E	  Town limited		  Very limited	
terrace	4:5	Very limited   Depth to	1.00	Depth to hard	1.00
		saturated zone		bedrock	
		Frost action	0.50	Depth to	1.00
	į	Depth to hard	0.35	saturated zone	į
		bedrock		Cutbanks cave	1.00
	 	 		Depth to soft bedrock	0.99
Gongeau, bedrock	 	 	į I	 	į į
terrace	25	Very limited	İ	Very limited	į
		Depth to	1.00	Depth to hard	1.00
		saturated zone		bedrock	
		Depth to soft	1.00	Depth to soft	1.00
		bedrock		bedrock	
		Frost action   Depth to hard	1.00	Depth to saturated zone	1.00
		bedrock		sacurated zone	
Deerton, bedrock					
terrace	20			Very limited	
		Slope Depth to hard	1.00  0.01	Depth to hard bedrock	1.00
	 	bedrock	0.01	Cutbanks cave	1.00
		Dedlock		Slope	1.00
				Depth to soft	0.84
	 	 	į	bedrock	į
66D: Ruse, bedrock	   	 			
terrace	40	  Very limited		  Very limited	
JJ11400	20	Depth to hard	1.00	Depth to hard	1.00
	i	bedrock		bedrock	
	į	Depth to	1.00	Depth to soft	1.00
		saturated zone		bedrock	
		Depth to soft	1.00	Depth to	1.00
		bedrock		saturated zone	
	1	Frost action	1.00	I	1

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of	!	reets	Shallow excavati 	ons
	map				
	unit	!	177-1	   Dating along and	177-1
	 	Rating class and   limiting features	value	Rating class and   limiting features	Valu
		[			
66D:					
Ensign, bedrock terrace	   30	  Very limited	 	  Very limited	
CCIIGC	30	Depth to hard	1.00	_	1.00
	İ	bedrock		bedrock	
	ĺ	Depth to	1.00	Depth to soft	1.00
		saturated zone		bedrock	
		Depth to soft bedrock	1.00	Depth to saturated zone	1.00
	 	Frost action	0.50	saturated zone	
	į	į	į		į
Nykanen, bedrock terrace		  Very limited		  Very limited	
cerrace	20	Depth to	1.00	_	1.00
		saturated zone		bedrock	
	į	Depth to soft	1.00	Depth to soft	1.00
		bedrock	[	bedrock	!
		Depth to hard	0.84	Depth to	1.00
	 	bedrock   Slope	0.63	saturated zone	0.63
		Frost action	0.50	blope	
	İ				i
66F:		!	İ		[
Ruse, bedrock		 		 	
terrace	40 	Very limited   Depth to hard	1.00	Very limited   Depth to hard	1.00
		bedrock		bedrock	
	İ	Depth to	1.00	Depth to soft	1.00
		saturated zone		bedrock	
		Depth to soft	1.00	Depth to	1.00
		bedrock   Frost action	1.00	saturated zone	
		Flost action			
Ensign, bedrock	İ	İ	İ		i
terrace	30	Very limited		Very limited	
	 	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to	1.00	Depth to soft	1.00
	İ	saturated zone		bedrock	
	ĺ	Depth to soft	1.00	Depth to	1.00
		bedrock		saturated zone	
	 	Frost action	0.50	 	
Nykanen, bedrock					i
terrace	20	Very limited	į	Very limited	i
		Depth to	1.00		1.00
		saturated zone		bedrock	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00		1.00
	į	Depth to hard	0.84	saturated zone	į
		bedrock		Slope	1.00
	 	Frost action	0.50	 	
68:		 		[ 	
Pits, quarry	100	Not rated	İ	  Not rated	i
69B:					
Escanaba	85	Not limited		Very limited   Cutbanks cave	1.00
	1	I I		Cuchanns Cave	1 - 00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct.   of  map  unit		reets	Shallow excavations   		
	   	Rating class and	Value	Rating class and limiting features	Value	
71A:	 					
Evart	70	Very limited		Very limited		
		Depth to	1.00	Depth to	1.00	
		saturated zone		saturated zone		
		Frost action	1.00	Cutbanks cave	1.00	
		Flooding	1.00	Ponding	1.00	
	 	Ponding	1.00	Flooding	0.80	
Sturgeon	20	  Very limited		  Very limited		
-	İ	Depth to	1.00	Depth to	1.00	
	ĺ	saturated zone	İ	saturated zone	İ	
		Frost action	1.00	Cutbanks cave	1.00	
		Flooding	1.00	Flooding	0.80	
72E:	 	 		 		
Deerton, dissected	40	  Verv limited		  Very limited		
20020011, 02220000		Slope	1.00	Depth to hard	1.00	
		Depth to hard	0.01	bedrock		
	İ	bedrock	İ	Cutbanks cave	1.00	
	İ	İ	į	Slope	1.00	
				Depth to soft	0.84	
				bedrock		
Tokiahok, dissected	   30	  Very limited	 	  Very limited		
10111111111, 4111111111		Slope	1.00	Depth to thick	1.00	
		Depth to thick	0.90	cemented pan	i	
	İ	cemented pan	į	Cutbanks cave	1.00	
	ĺ		İ	Slope	1.00	
				Dense layer	0.50	
Trout Bay, dissected	   15	  Very limited		  Very limited		
front bay, dissected	13	Depth to	1.00	Depth to hard	1.00	
		saturated zone		bedrock		
		Subsidence	1.00	Depth to soft	1.00	
	İ	Depth to soft	1.00	bedrock	i	
	ĺ	bedrock	İ	Depth to	1.00	
		Frost action	1.00	saturated zone		
		Slope	1.00	Slope	1.00	
72F:	 	 		 		
Deerton, dissected	40	  Very limited	İ	  Very limited	i	
	İ	Slope	1.00	Depth to hard	1.00	
	ĺ	Depth to hard	0.01	bedrock	ĺ	
		bedrock		Slope	1.00	
				Cutbanks cave	1.00	
	 			Depth to soft bedrock	0.84	
Tokiahok, dissected	25	Very limited		Very limited		
		Slope	1.00	Depth to thick	1.00	
		D	0.90		1	
		Depth to thick	0.90	cemented pan	!	
	 	cemented pan		Slope	1.00	
	   			_	1.00  1.00  0.50	

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct.	Local roads and st	reets	Shallow excavati	ons
	map	  -			
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
2F: Trout Bay, dissected	   20	  Very limited		  Very limited	l I
ilout bay, dissected	20	Depth to	1.00	<u>-</u>	1.00
		saturated zone	į	bedrock	İ
		Slope	1.00	Depth to soft	1.00
		Subsidence	1.00	bedrock	
	 	Depth to soft bedrock	1.00	Slope   Depth to	1.00
	   	Frost action	1.00	saturated zone	
6C:					
Garlic, dissected	40	Not limited		Very limited   Cutbanks cave	1.00
	 	 		Cutbanks cave	1
Blue Lake, dissected	30	Not limited	į	  Very limited	İ
		1		Cutbanks cave	1.00
Voelker, dissected	20	  Somewhat limited		  Very limited	1
,		Depth to thin	1.00	Depth to thin	1.00
		cemented pan		cemented pan	
	 	 		Cutbanks cave	1.00
6E:					
Garlic, dissected	40	-		Very limited	
		Slope 	1.00	Cutbanks cave	1.00  1.00
Blue Lake, dissected	   30	  Very limited		  Very limited	
220 24.10, 422200004		Slope	1.00	Cutbanks cave	1.00
		-	į	Slope	1.00
Voelker, dissected	20	  Very limited		  Very limited	
		Depth to thin	1.00	Depth to thin	1.00
		cemented pan		cemented pan	
		Slope 	1.00	Cutbanks cave	1.00  1.00
6F:		 		 	
Garlic, dissected	40	  Very limited	į	  Very limited	j
		Slope	1.00	Slope	1.00
	 			Cutbanks cave	1.00
Blue Lake, dissected	30	  Very limited		  Very limited	
		Slope	1.00	Slope	1.00
	 			Cutbanks cave	1.00
Voelker, dissected	20		İ	  Very limited	İ
		Depth to thin	1.00	Depth to thin	1.00
		cemented pan   Slope	1.00	cemented pan Slope	1.00
		Slope		Cutbanks cave	1.00
7B:	 	 		 	
Garlic	40	Not limited	į	  Very limited	į
	ı	I	I	Cutbanks cave	1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit		reets	Shallow excavati	ons.
		Rating class and limiting features	Value	Rating class and   limiting features	Value
77B: Blue Lake	     30 	    Not limited 	     	  Very limited   Cutbanks cave	
Voelker	   20     	  Somewhat limited   Depth to thin   cemented pan	  1.00     	   Very limited   Depth to thin   cemented pan   Cutbanks cave	  1.00    1.00
77D:	į	İ	İ		į
Garlic	40   	Somewhat limited   Slope 	  0.16 	Very limited   Cutbanks cave   Slope	  1.00  0.16
Blue Lake	30   	Somewhat limited   Slope	  0.16 	   Very limited   Cutbanks cave   Slope	  1.00  0.16
Voelker	   20     	   Somewhat limited   Depth to thin   cemented pan   Slope	  1.00    0.16	   Very limited   Depth to thin   cemented pan   Cutbanks cave   Slope	  1.00    1.00  0.16
77E:	 	 	 	 	l I
Garlic	   40 	  Very limited   Slope 	1.00	  Very limited   Slope   Cutbanks cave	1.00
Blue Lake	   30 	  Very limited   Slope 	    1.00	  Very limited   Slope   Cutbanks cave	  1.00  1.00
Voelker	   20       	   Very limited   Depth to thin   cemented pan   Slope	  1.00    1.00	   Very limited   Depth to thin   cemented pan   Slope   Cutbanks cave	  1.00    1.00  1.00
88: Cathro	   55           	  Very limited   Depth to   saturated zone   Subsidence   Frost action   Ponding	   1.00   1.00   1.00   1.00	Very limited Depth to saturated zone Cutbanks cave Ponding Organic matter content	  1.00    1.00  1.00  1.00
Ensley	   35       	   Very limited   Depth to   saturated zone   Frost action   Ponding	  1.00    1.00  1.00	   Very limited   Depth to   saturated zone   Cutbanks cave   Ponding	  1.00    1.00  1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map		reets	Shallow excavati   	ons
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
••					
93: Tawas	   70 	  Very limited   Depth to	1.00		1.00
	       	saturated zone Subsidence Frost action Ponding	1.00  1.00  1.00	l .	  1.00  1.00  1.00
Deford	   20   		  1.00    1.00	saturated zone	  1.00    1.00
	   	Ponding   Frost action	0.50	Cutbanks cave   Ponding	1.00
95B: Liminga	90	  Not limited		  Very limited   Cutbanks cave	1.00
104C:	 	 		 	
Fence, dissected 90	90   	Very limited   Frost action   Low strength	  1.00  1.00	Very limited   Depth to   saturated zone	  1.00 
	     	Shrink-swell Depth to saturated zone	0.78  0.75 	Cutbanks cave   	1.00   
109D: Rousseau		    Somewhat limited		    Very limited	į
Kousseau	30   	Slope	0.37	<u>-</u>	1.00
Dawson	45 45	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
	   	Subsidence   Frost action	1.00	Cutbanks cave	1.00
	   	Ponding	1.00		1.00
109F:	 	 		 	
Rousseau	55   	Very limited   Slope 	1.00	Very limited   Cutbanks cave   Slope	  1.00  1.00
Dawson	   40 	Depth to	1.00		1.00
	 	saturated zone Subsidence	1.00	saturated zone Cutbanks cave	1.00
	     	Frost action   Ponding 	1.00  1.00 		1.00  1.00 
125B: Stutts	     65	  Not limited		  Very limited   Cutbanks cave	1.00
Kalkaska	   35 	  Not limited 	   	  Very limited   Cutbanks cave	    1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	Local roads and st   	reets	Shallow excavati	ons
	unit	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
125D: Stutts	     65 	    Somewhat limited   Slope	      0.37	Very limited Cutbanks cave Slope	    1.00  0.37
Kalkaska	   25   	  Somewhat limited   Slope 	    0.37 	Very limited Cutbanks cave Slope	  1.00  0.37
125E:	 	 	 		i
Stutts	   55   	  Very limited   Slope 	1.00	Very limited Slope Cutbanks cave	  1.00  1.00
Kalkaska	   <b>45</b>   	  Very limited   Slope 	    1.00	Very limited Slope Cutbanks cave	  1.00  1.00
135B:	 	 			
Munising, calcareous					
substratum	65           	Very limited   Depth to   saturated zone   Depth to thick   cemented pan   Frost action	  1.00    0.99    0.50	Very limited  Depth to thick  cemented pan  Depth to  saturated zone  Cutbanks cave  Dense layer	  1.00    1.00    1.00  0.50
Ensley	   25     	Very limited Depth to saturated zone Frost action Ponding	  1.00    1.00  1.00	Very limited  Depth to  saturated zone  Cutbanks cave  Ponding	  1.00    1.00  1.00
145C:	 	 			
Munising, dissected, very stony		   Very limited   Depth to   saturated zone   Depth to thick   cemented pan   Frost action	  1.00    0.99    0.50	Very limited  Depth to thick cemented pan Depth to saturated zone Dense layer Cutbanks cave	  1.00    1.00    0.50  0.10
Yalmer, dissected, very stony	   35         	  Very limited   Depth to   saturated zone 	    1.00       	Very limited  Depth to saturated zone Cutbanks cave Depth to thin cemented pan Dense layer	    1.00    1.00  0.90   

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct.	Local roads and st	reets	Shallow excavati	ons
and soll name	map	 			
	unit				
		Rating class and	Value	Rating class and	Value
		limiting features	İ	limiting features	<u>i</u>
146B:	 	 			
Munising, stony	60	  Very limited		  Very limited	i
-	j	Depth to	1.00	Depth to thick	1.00
		saturated zone		cemented pan	
		Depth to thick	0.99	Depth to	1.00
		cemented pan		saturated zone	
	 	Frost action	0.50	Dense layer Cutbanks cave	0.50
	 	 		Cutbanks cave	
Skanee, stony	30	  Very limited	İ	Very limited	İ
	ĺ	Depth to thin	1.00	Depth to thin	1.00
		cemented pan		cemented pan	
		Depth to	1.00	Depth to	1.00
	 	saturated zone	11 00	saturated zone	
	 	Frost action	1.00	Dense layer	0.50
147A:	İ		İ		İ
Skanee, very stony	55	-	:	Very limited	
		Depth to thin	1.00	Depth to thin	1.00
	 	cemented pan Depth to	1.00	cemented pan Depth to	1.00
	 	saturated zone	1	saturated zone	1.00
į		Frost action	1.00	Dense layer	0.50
	ĺ	İ	İ		İ
Gay, very stony	35	-	:	Very limited	
	 	Depth to	1.00	-	1.00
	 	saturated zone Frost action	1.00	saturated zone Ponding	1.00
		Ponding	1.00	Cutbanks cave	0.10
1.40=					
148B: Shoepac	   70	  Somewhat limited		  Very limited	
		Depth to	0.75	_	1.00
	İ	saturated zone	į	saturated zone	İ
		Frost action	0.50	Cutbanks cave	1.00
	 			Dense layer	0.50
Ensley	   20	  Very limited		  Very limited	
•	İ	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Frost action	1.00	Cutbanks cave	1.00
	 	Ponding	1.00	Ponding	1.00
155A:	 				
Zeba, very stony	55	Very limited	İ	Very limited	İ
		Depth to	1.00	· -	1.00
		saturated zone		bedrock	
	 	Frost action	1.00	-	1.00
	 	Depth to hard bedrock	0.20	saturated zone Cutbanks cave	0.10
	j	İ	İ	İ	i
Jacobsville, very		 		Vor. limited	
stony	30 	Very limited   Depth to	1.00	Very limited   Depth to hard	1.00
	 	saturated zone		Depth to hard   bedrock	
		Frost action	1.00	Depth to	1.00
		Ponding	1.00	-	i
		Depth to hard	0.06	Ponding	1.00
		bedrock		Cutbanks cave	0.10

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct.	   Local roads and st 	reets	   Shallow excavati	ons
and soil name	map	 			
	unit			<u> </u>	
	 	Rating class and   limiting features	Value	Rating class and limiting features	Value
157B: Reade	   45	  Very limited	l I	  Very limited	
Reade	=3	Depth to	1.00	Depth to hard	1.00
		saturated zone		bedrock	
	İ	Depth to hard	0.64	Depth to	1.00
		bedrock		saturated zone	
	 	Frost action	0.50	Cutbanks cave	1.00
Nahma	   40	  Very limited	 	  Very limited	
		Depth to	1.00	Depth to hard	1.00
	İ	saturated zone	į	bedrock	į
		Frost action	1.00	Depth to	1.00
		Ponding	1.00	saturated zone	
		Depth to hard	0.46	Cutbanks cave	1.00
	 	bedrock	1	Ponding	1.00
158C:			i		i
Munising, dissected,	İ		į		i
stony	50	Very limited		Very limited	
		Depth to	1.00	Depth to thick	1.00
	 	saturated zone	10.00	cemented pan	1.00
	 	Depth to thick cemented pan	0.99	Depth to saturated zone	1
		Frost action	0.50	Dense layer	0.50
	İ	İ	İ	Cutbanks cave	0.10
Abbaye, dissected, stony	   35	  Very limited	1	  Very limited	
beony	33	Depth to	1.00	Depth to hard	1.00
	İ	saturated zone	į	bedrock	i
		Frost action	0.50	Depth to	1.00
		Depth to hard	0.29	saturated zone	
	 	bedrock		Cutbanks cave	1.00
160B:	 		1		
Paquin	55	Somewhat limited	į	Very limited	i
		Depth to thin	1.00	Depth to thin	1.00
		cemented pan		cemented pan	
	 	Depth to saturated zone	0.19	Depth to saturated zone	1.00
				Cutbanks cave	1.00
	İ		į		į
Finch	45	Very limited		Very limited	
		Depth to thick	1.00	-	1.00
	i			cemented pan	
	 	cemented pan	1 00	· -	1 00
	     	Depth to	1.00	· -	1.00
	     	· -	  1.00   	Depth to	1.00
	       	Depth to	  1.00   	Depth to saturated zone	į
161B:	         	Depth to saturated zone	  1.00     	Depth to saturated zone Cutbanks cave	į
161B: Yellowdog, stony	           50	Depth to saturated zone  Somewhat limited	       	Depth to saturated zone Cutbanks cave  Very limited	  1.00   
	           50	Depth to saturated zone	  1.00              0.50  0.29	Depth to saturated zone Cutbanks cave	į
	           50	Depth to saturated zone  Somewhat limited Large stones	          0.50	Depth to saturated zone Cutbanks cave  Very limited Depth to hard	  1.00   
	           50	Depth to saturated zone  Somewhat limited Large stones Depth to hard	          0.50	Depth to saturated zone Cutbanks cave  Very limited Depth to hard bedrock	  1.00        1.00
Yellowdog, stony	       	Depth to saturated zone	        0.50  0.29 	Depth to saturated zone Cutbanks cave  Very limited Depth to hard bedrock Cutbanks cave Large stones	  1.00        1.00    1.00
	       	Depth to saturated zone  Somewhat limited Large stones Depth to hard	        0.50  0.29 	Depth to saturated zone Cutbanks cave  Very limited Depth to hard bedrock Cutbanks cave	  1.00        1.00    1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map		reets	Shallow excavati   	ons.
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
165B:		 			
Chocolay, very stony	55 	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to hard   bedrock	1.00
	   	Large stones   Depth to hard	0.95 0.71	Depth to saturated zone	1.00
	і І	bedrock Frost action	0.50	Cutbanks cave	1.00
Waiska, very stony	30	  Not limited		  Very limited	
	 	 		Cutbanks cave	1.00
166: Skandia	   85 	  Very limited   Depth to	    1.00	-	    1.00
	 	saturated zone   Subsidence	1.00	bedrock   Depth to	1.00
	   	Frost action Ponding Depth to hard	1.00  1.00  0.35	saturated zone Organic matter content	1.00
	     	bedrock		Ponding Depth to soft bedrock	1.00
167:	 	 		 	
Skandia, stony	55   	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to hard   bedrock	1.00
	   	Subsidence Frost action	1.00	Depth to saturated zone	1.00
	 	Ponding Depth to hard	1.00	Organic matter content	1.00
	   	bedrock   	   	Ponding   Depth to soft   bedrock	1.00  0.79 
Jacobsville, stony	   35 	  Very limited   Depth to	    1.00	  Very limited   Depth to hard	    1.00
	 	saturated zone Frost action	1.00	bedrock Depth to	1.00
	 	Ponding Depth to hard	1.00	saturated zone	1.00
1500	 	bedrock 		Cutbanks cave	0.10
170B: Chocolay, very stony	   90 	  Very limited   Depth to	    1.00	  Very limited   Depth to hard	    1.00
	 	saturated zone   Large stones	0.95	bedrock   Depth to	1.00
	   	Depth to hard bedrock	0.71	saturated zone Cutbanks cave	1.00
	į	Frost action	0.50	Large stones	0.95

Table 12b.--Building Site Development--Continued

Pct. of map	Local roads and streets   		Shallow excavati   	ons
unit   	Rating class and	1	   Rating class and   limiting features	Value
	l			
90 	: -	1 00		1.00
	:		-	
	Depth to thick	0.54	· -	1.00
	cemented pan		saturated zone	
			!	1.00
 	 		Dense layer	0.50
	! 		 	
70	  Very limited	i	  Very limited	İ
	Depth to hard	1.00	Depth to hard	1.00
	bedrock		bedrock	
 	Slope	1.00	Slope	1.00
1 15	  Not rated		  Not rated	
13				
j	j	į		j
70	: -	:	_	
	: -	1.00	-	1.00
 	!	1.00		1.00
15	Not rated		Not rated	İ
50	Somewhat limited	i	  Very limited	İ
	Depth to	0.19	Depth to	1.00
	saturated zone		saturated zone	
 	 		Cutbanks cave	1.00
40	  Verv limited		  Verv limited	
	Depth to	:	_	1.00
İ	saturated zone	į	saturated zone	İ
	Ponding	1.00	Cutbanks cave	1.00
	Frost action	0.50	Ponding	1.00
	! 		 	
	  Very limited	i	  Very limited	İ
İ	Depth to thick	1.00	Depth to thick	1.00
	:		cemented pan	
l I				1.00
 	FIOSE ACCION	0.50	-	1.00
		i		
30	: -		Very limited	
	Slope			1.00
 	: -	U.9U	· -	1.00
!	Comoniced pair	1	!	1
			Slope	1.00
	of   map   unit	of   map   unit   Rating class and   limiting features   90   Very limited   Depth to   saturated zone   Depth to thick   cemented pan   15   Not rated   Depth to hard   bedrock   Slope   15   Not rated   Depth to hard   bedrock   Slope   15   Not rated   Slope   15   Not rated   Depth to saturated zone   40   Very limited   Depth to   saturated zone   Ponding   Frost action   60   Very limited   Depth to thick   cemented pan   Slope   Frost action   30   Very limited   Depth to saturated zone   Frost action   10   Tenton   Tent	Of   map     unit     Rating class and   Value   limiting features	Of map   unit   Rating class and   Value   Rating class and   limiting features

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	Local roads and st   	reets	Shallow excavati   	ons	
	unit			! 		
		Rating class and limiting features	Value	Rating class and limiting features	Value	
185B:				l		
McMaster	   90   	  Somewhat limited   Depth to   saturated zone	  0.19 	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    1.00	
		 		cutbanks cave		
186B: Chatham, stony	   85 	  Somewhat limited   Frost action	0.50	  Very limited   Cutbanks cave	1.00	
186D:	 	 		 		
Chatham, stony	85	Somewhat limited   Frost action   Slope	0.50	!	1.00	
	 	Slope	0.37	Slope 	0.37	
187B: Reade	   85 	  Very limited   Depth to   saturated zone	1.00	Very limited Depth to hard bedrock	1.00	
 	 	Depth to hard	0.64	Depth to	1.00	
	   	Frost action	0.50	Cutbanks cave	1.00	
188B:	į		į		į	
Eben, stony	85   	Somewhat limited   Large stones   Frost action	0.68	Very limited   Cutbanks cave   Large stones	  1.00  0.68	
	į	į	į		į	
188D: Eben, stony	   90	  Somewhat limited   Large stones	0.68	  Very limited   Cutbanks cave	    1.00	
		Frost action	0.50	Large stones	0.68	
	 	Slope 	0.37	Slope 	0.37	
188E: Eben, stony	   90	  Very limited		  Very limited		
	!	Slope	1.00		1.00	
	 	Large stones   Frost action	0.68	Cutbanks cave	1.00	
191B:	 	 		 		
Ruse	50 	Very limited   Depth to hard   bedrock	1.00	Very limited   Depth to hard	1.00	
	 	Depth to	1.00	bedrock   Depth to	1.00	
	İ	saturated zone		saturated zone		
		Frost action   Ponding	1.00	Ponding Cutbanks cave	1.00	
Ensign	   40	  Very limited		  Very limited		
		Depth to hard	1.00	Depth to hard	1.00	
		bedrock   Depth to	1.00	bedrock Depth to	1.00	
		saturated zone		saturated zone		
	i	Frost action	1.00	I	i	

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	Local roads and st 	reets	Shallow excavati	ons.
	unit	 		 	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value
1070					
197B: Shoepac	   50	  Somewhat limited		  Very limited	
		Depth to	0.75	_	1.00
	İ	saturated zone	İ	saturated zone	i
		Frost action	0.50	Cutbanks cave	1.00
				Dense layer	0.50
Trenary	   40	  Somewhat limited		  Somewhat limited	
remary	10	Frost action	0.50	Dense layer	0.50
		Shrink-swell	0.01	Cutbanks cave	0.10
198B: Shoepac	   60	  Somewhat limited		  Very limited	l I
z no opuo		Depth to	0.75	_	1.00
	İ	saturated zone	i	saturated zone	i
	İ	Frost action	0.50	Cutbanks cave	1.00
				Dense layer	0.50
Reade	   30	  Very limited		  Very limited	
Reade	30	Depth to	1.00	_	1.00
		saturated zone		bedrock	
	İ	Depth to hard	0.64	Depth to	1.00
		bedrock		saturated zone	
		Frost action	0.50	Cutbanks cave	1.00
200A:	 	 		 	
Charlevoix	55	  Very limited	i	  Very limited	i
	ĺ	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Frost action	1.00	Cutbanks cave	1.00
	 	 		Dense layer	0.50
Ensley	30	  Very limited		  Very limited	i
2		Depth to	1.00	_	1.00
	İ	saturated zone	İ	saturated zone	į
		Frost action	1.00	Cutbanks cave	1.00
		Ponding	1.00	Ponding	1.00
202B:	 	 			
Sauxhead, very stony	85	  Very limited	i	  Very limited	İ
		Depth to hard	1.00	Depth to hard	1.00
		bedrock		bedrock	
		Depth to	1.00		1.00
		saturated zone		bedrock	
	 	Depth to soft bedrock	1.00	Depth to saturated zone	1.00
	İ		i		İ
206B:		lare a la la la la			
Traunik	90	Not limited		Very limited	1 00
	 	 		Cutbanks cave	1.00
206D:					
Traunik	90	Somewhat limited		Very limited	
		Slope	0.16		1.00
			1	Slope	0.16

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit		reets	Shallow excavati	ons
	unit   	Rating class and limiting features	Value	Rating class and   limiting features	Value
211B: Munising	     55   	    Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to thick   cemented pan	      1.00
	     	Depth to thick cemented pan Frost action	0.99	saturated zone	1.00    0.50  0.10
Abbaye	   35   	  Very limited   Depth to   saturated zone	1.00	bedrock	1.00
	     	Frost action   Depth to hard   bedrock	0.50	_	1.00    1.00
214B: Kalkaska	   60 	  Not limited		  Very limited   Cutbanks cave	1.00
Blue Lake	30	  Not limited 		  Very limited   Cutbanks cave	1.00
214D: Kalkaska	     55   	  Somewhat limited   Slope 	    0.37	  Very limited   Cutbanks cave   Slope	    1.00  0.37
Blue Lake	   35   	  Somewhat limited   Slope 	    0.37 	  Very limited   Cutbanks cave   Slope	  1.00  0.37
214E: Kalkaska	     55   	  Very limited   Slope	    1.00	  Very limited   Slope   Cutbanks cave	  1.00  1.00
Blue Lake	   35   	  Very limited   Slope 	1.00	  Very limited   Slope   Cutbanks cave	  1.00  1.00
221B: Jeske	     40 	    Very limited   Depth to   saturated zone	1.00	    Very limited   Depth to hard   bedrock	      1.00
	       	Frost action Depth to hard bedrock	0.50  0.35 	-	1.00    1.00  0.99
Au Train	   30   	  Very limited   Depth to   saturated zone	1.00	bedrock	1.00
	     	Depth to soft   bedrock   Depth to hard   bedrock	1.00    0.29	Depth to soft bedrock Depth to saturated zone	1.00    1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of	Local roads and st	reets	Shallow excavati	ons
	map				
	unit				
	 	Rating class and   limiting features	Value	Rating class and limiting features	Value
221B:					
Gongeau	20	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to hard   bedrock	1.00
	 	Depth to soft	1.00	Depth to soft	1.00
		bedrock	1.00	bedrock	1
	İ	Frost action	1.00	Depth to	1.00
	į	Ponding	1.00	saturated zone	İ
		Depth to hard bedrock	0.54	Ponding	1.00
225B:	 	 			
Cusino	95	Not limited	İ	  Very limited	i
	 	  -	į	Cutbanks cave	1.00
225D:					
Cusino	95	Somewhat limited		Very limited	
		Slope	0.37	Cutbanks cave	1.00
	 	 		Slope	0.37
226B:	į	į	į		į
Kalkaska	50	Not limited		Very limited	
	 	 		Cutbanks cave	1.00
Cusino	45	Not limited	İ	  Very limited	i
	į		į	Cutbanks cave	1.00
226D:	 	 			
Kalkaska	50	Somewhat limited	į	Very limited	į
		Slope	0.37	Cutbanks cave	1.00
		 		Slope	0.37
Cusino	45	  Somewhat limited		  Very limited	
	į	Slope	0.37	Cutbanks cave	1.00
				Slope	0.37
226E:					
Kalkaska	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
	 	 		Cutbanks cave	1.00
Cusino	40	  Very limited		  Very limited	
	į	Slope	1.00	Slope	1.00
		 		Cutbanks cave	1.00
226F:					
Kalkaska	50	Very limited		Very limited	
		Slope	1.00	· -	1.00
	 	 	 	Cutbanks cave	1.00
Cusino	35	  Very limited		  Very limited	
	į	Slope	1.00	_	1.00
				Cutbanks cave	1.00
227A:					
Halfaday	90	Somewhat limited	İ	Very limited	İ
		Depth to	0.19	· -	1.00
	1	saturated zone	1	saturated zone	1
				Cutbanks cave	1.00

Table 12b.--Building Site Development--Continued

and soil name	Pct. of map unit	 	reets	Shallow excavati   	ons
		Rating class and limiting features	Value	Rating class and   limiting features	Value
232B: Shelldrake	     90 	    Not limited   	     	    Very limited   Cutbanks cave 	      1.00
233B: Abbaye, very stony	   50     	   Very limited   Depth to   saturated zone   Frost action   Depth to hard   bedrock	  1.00    0.50  0.29	bedrock Depth to	  1.00    1.00 
Zeba, very stony	   35     	  Very limited   Depth to   saturated zone   Frost action   Depth to hard	  1.00    1.00  0.20	bedrock	  1.00    1.00
234A:	   	bedrock		Cutbanks cave	0.10
Levasseur, very stony	   55   	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Depth to hard   bedrock	    1.00
 	   	Depth to saturated zone Large stones Frost action	1.00    0.85  0.50	Depth to saturated zone Large stones	1.00
Burt, very stony	   35   	  Very limited   Depth to hard   bedrock   Depth to	  1.00    1.00	bedrock	  1.00    1.00
	       	saturated zone Ponding Frost action	  1.00  0.50	saturated zone Ponding	1.00
235B: Sauxhead, very stony	   60 	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Depth to hard   bedrock	1.00
	     	Depth to saturated zone Depth to soft bedrock	İ	Depth to soft bedrock Depth to saturated zone	1.00    1.00 
Burt, very stony 3	   30 	  Very limited   Depth to hard   bedrock	    1.00	  Very limited   Depth to hard   bedrock	    1.00
	     	Depth to saturated zone Ponding Frost action	1.00    1.00  0.50		1.00    1.00
236B: Waiska, extremely bouldery	       85	 	     	      Very limited   Cutbanks cave	        1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	of   ap		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value
236D: Waiska, extremely bouldery	     85	      Somewhat limited   Slope	        0.16	      Very limited   Cutbanks cave	        1.00
	   	Blope		Slope	0.16
237B: Chatham	     65	    Somewhat limited   Frost action	      0.50	    Very limited   Cutbanks cave	      1.00
Davies	20	Very limited   Depth to   saturated zone   Frost action   Ponding   Large stones	  1.00    1.00  1.00  0.14	Very limited Depth to saturated zone Cutbanks cave Ponding Large stones	  1.00    1.00  1.00  0.14
239B: Longrie	     50 	    Somewhat limited   Frost action   Depth to hard	      0.50  0.06	    Very limited   Depth to hard   bedrock	      1.00
		bedrock		Cutbanks cave	0.10
Shingleton	40   	Very limited   Depth to hard   bedrock	  1.00 	Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
240F: Trout Bay	     30 	    Very limited   Depth to   saturated zone		    Very limited   Depth to hard   bedrock	1.00
		Subsidence   Depth to soft   bedrock	1.00	Depth to soft   bedrock   Depth to	  1.00    1.00
		Frost action   Slope	1.00	saturated zone	1.00
Gongeau	25	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to hard   bedrock	1.00
	   	Depth to soft bedrock Frost action Depth to hard	1.00    1.00  0.54	Depth to soft bedrock Depth to saturated zone	1.00    1.00
		bedrock			
Shingleton	20     	Very limited   Depth to hard   bedrock   Slope	  1.00    1.00	Very limited   Depth to hard   bedrock   Slope   Cutbanks cave	  1.00    1.00  0.10
Rock outcrop	   15	  Not rated		Not rated	

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit		reets	Shallow excavati   	ons
		Rating class and limiting features	Value	Rating class and   limiting features	Value
241: Cathro	     55 	    Very limited   Depth to   saturated zone	      1.00	    Very limited   Depth to   saturated zone	
	     	Subsidence   Frost action   Ponding	1.00  1.00  1.00		1.00
Gay	   35       	   Very limited   Depth to   saturated zone   Frost action   Ponding	  1.00    1.00  1.00	saturated zone	  1.00    1.00  0.10
242B: Kalkaska, severely burned	       95 	      Not limited 	       	      Very limited   Cutbanks cave	        1.00
242D: Kalkaska, severely burned	       95   	    Somewhat limited   Slope	0.37	   Very limited   Cutbanks cave   Slope	      1.00  0.37
242F: Kalkaska, severely burned	       90 	      Very limited   Slope 	        1.00	    Very limited   Slope   Cutbanks cave	      1.00  1.00
243: Markey	   95         	   Very limited   Depth to   saturated zone   Subsidence   Frost action   Ponding	1.00	saturated zone Cutbanks cave Ponding	    1.00    1.00  1.00
245B: Trout Bay	   40         	Depth to saturated zone Subsidence Depth to soft bedrock Frost action	1.00    1.00  1.00 	bedrock Depth to soft bedrock Depth to saturated zone	    1.00    1.00    1.00
Lupton	     30   	Ponding 	1.00	Ponding 	1.00      1.00 
	     	Subsidence Frost action Ponding	1.00  1.00  1.00	Organic matter content Ponding	1.00    1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of	Local roads and st	reets	Shallow excavati	ons
	map unit	 		j 	
		Rating class and limiting features	Value	Rating class and limiting features	Value
245B:	 	 		 	
Gongeau	20 	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to hard   bedrock	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
	 	Frost action   Ponding	1.00	Depth to saturated zone	1.00
		Depth to hard   bedrock	0.54	Ponding	1.00
246B:					
Garlic	90   	Not limited   	   	Very limited   Cutbanks cave 	1.00
246D:					į
Garlic	90   	Somewhat limited   Slope 	0.37	Very limited   Cutbanks cave   Slope	1.00
246E:				 	
Garlic	90 	Very limited   Slope	1.00	Very limited   Slope	1.00
į				Cutbanks cave	1.00
248B:					
Escanaba	50 	Not limited		Very limited   Cutbanks cave	1.00
Greylock	   40 	  Somewhat limited   Frost action	0.50	  Somewhat limited   Cutbanks cave	0.10
248D:				  -	
Escanaba	50	  Somewhat limited		  Very limited	
		Slope 	0.37	Cutbanks cave	1.00
Greylock	40	  Somewhat limited	'	  Somewhat limited	-
		Frost action   Slope	0.50	Slope Cutbanks cave	0.37
248E:		 		 	
Escanaba	50	  Very limited		  Very limited	
		Slope	1.00	Slope Cutbanks cave	1.00
Greylock	   40	  Very limited		  Very limited	1
		Slope   Frost action	1.00	Slope   Cutbanks cave	1.00
				cacbanks cave	
249B: Sauxhead	   55 	  Very limited   Depth to hard		  Very limited	
		Depth to hard   bedrock	1.00	Depth to hard bedrock	1.00
	 	Depth to saturated zone	1.00	Depth to soft bedrock	1.00
		Depth to soft	1.00	Depth to	1.00
	 	bedrock		saturated zone	1

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	 	reets	Shallow excavati   	ons
	unii c   	Rating class and limiting features	Value	Rating class and limiting features	Value
		Ī	İ		İ
249B: Skandia	   35 	  Very limited   Depth to	    1.00	  Very limited   Depth to hard	    1.00
	   	saturated zone   Subsidence	1.00	bedrock	1.00
	   	Frost action   Ponding   Depth to hard	1.00  1.00  0.35	saturated zone Organic matter content	1.00
	     	bedrock		Ponding Depth to soft bedrock	1.00
250B: Chocolay, extremely	   	 	   	  - 	   
stony	55 	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to hard   bedrock	1.00
	   	Large stones   Depth to hard	0.95 0.71	Depth to saturated zone	1.00
	 	bedrock   Frost action	0.50	Cutbanks cave	1.00
Jacobsville, extremely stony	     30	    Very limited	   	    Very limited	   
	   	Depth to   saturated zone   Frost action	1.00	Depth to hard bedrock	1.00
	   	Ponding   Depth to hard	1.00  1.00  0.06	Depth to   saturated zone   Ponding	1.00    1.00
251B:	   	bedrock 		Cutbanks cave	0.10
Greylock	90   	Somewhat limited   Frost action	0.50	Somewhat limited   Cutbanks cave	0.10
251D: Greylock	   85 	  Somewhat limited   Frost action	    0.50	  Somewhat limited   Slope	    0.37
	   	Slope	0.37	Cutbanks cave	0.10
252A: Finch	   50 	  Very limited   Depth to thick   cemented pan	1.00	  Very limited   Depth to thick   cemented pan	    1.00
	   	Depth to   saturated zone	1.00	Depth to saturated zone	1.00
Kinross	     40	    Very limited	   	Cutbanks cave    Very limited	1.00   
		Depth to saturated zone	1.00	saturated zone	1.00
	   	Ponding   Frost action 	1.00  0.50 	Cutbanks cave Ponding	1.00  1.00 
254C: Kalkaska, dissected	   55 	  Not limited 		  Very limited   Cutbanks cave	1.00
Blue Lake, dissected	   35 	  Not limited 	   	  Very limited   Cutbanks cave	    1.00

Table 12b.--Building Site Development--Continued

	Pct. of map unit	Local roads and st	reets	Shallow excavati	ons.
		Rating class and limiting features	:	Rating class and limiting features	Value
254E: Kalkaska, dissected	   55 	  Very limited   Slope 	      1.00	Very limited Cutbanks cave	    1.00  1.00
Blue Lake, dissected	35   	  Very limited   Slope 	    1.00 	  Very limited   Cutbanks cave   Slope	  1.00  1.00
254F:			İ		i
Kalkaska, dissected	55   	   Very limited   Slope 	  1.00 	Very limited Slope Cutbanks cave	  1.00  1.00
Blue Lake, dissected	35 	  Very limited   Slope 	    1.00 	  Very limited   Slope   Cutbanks cave	1.00
255D: Wallace	95	  Somewhat limited   Depth to thin   cemented pan   Slope	  1.00    0.01 	Very limited Depth to thin cemented pan Cutbanks cave Dense layer Slope	  1.00    1.00  0.50  0.01
256B: Whitewash	95	  Not limited 	     	  Very limited   Cutbanks cave	1.00
266A: Spot	   50   	Very limited Depth to thin cemented pan Depth to saturated zone Ponding Frost action	  1.00    1.00    1.00  0.50	cemented pan	  1.00    1.00    1.00
Finch	   40     	Very limited Depth to thick cemented pan Depth to saturated zone	    1.00    1.00 	cemented pan	  1.00    1.00    1.00
267A: Finch	   85   	   Very limited   Depth to thick   cemented pan   Depth to   saturated zone	    1.00    1.00	cemented pan	    1.00    1.00 

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map		reets	Shallow excavati   	ons.
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value
268C: Munising, calcareous substratum, dissected	       40   	Very limited Depth to saturated zone Depth to thick cemented pan	        1.00    0.99	Very limited Depth to thick cemented pan Depth to saturated zone	        1.00    1.00
	   	Frost action   	0.50   	Cutbanks cave   Dense layer 	1.00  0.50 
Frohling, calcareous substratum,	 	 		 	
dissected	30	Somewhat limited  Depth to thick  cemented pan  Frost action	  0.90    0.50	Very limited  Depth to thick  cemented pan  Cutbanks cave  Dense layer	  1.00    1.00  0.50
Cookson, dissected	   20   	Somewhat limited   Frost action   Depth to hard   bedrock	  0.50  0.06	   Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
269E: Frohling, calcareous substratum,	     	 		 	   
dissected	50       	Very limited Slope Depth to thick cemented pan Frost action	  1.00  0.90    0.50	Very limited    Depth to thick   cemented pan   Cutbanks cave   Slope   Dense layer	  1.00    1.00  1.00  0.50
Garlic, dissected	   20 	  Very limited   Slope 	    1.00	  Very limited   Cutbanks cave   Slope	  1.00  1.00
Cookson, dissected	   20     	Very limited   Slope   Frost action   Depth to hard   bedrock	  1.00  0.50  0.06	   Very limited   Depth to hard   bedrock   Slope   Cutbanks cave	  1.00    1.00  0.10
272C: Munising, calcareous substratum,	     	 		 	   
dissected	40     	Very limited    Depth to   saturated zone   Depth to thick   cemented pan	  1.00    0.99	Very limited Depth to thick cemented pan Depth to saturated zone	  1.00    1.00
	   	Frost action 	0.50	Cutbanks cave   Dense layer	1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map		reets	Shallow excavati   	ons
 	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value
272C: Yalmer, calcareous substratum,	     	 	     	 	     
dissected	30           	Very limited   Depth to   saturated zone   Depth to thick   cemented pan	  1.00    0.65   	Very limited  Depth to thick  cemented pan  Depth to  saturated zone  Cutbanks cave  Dense layer	  1.00    1.00    1.00  0.50
Frohling, calcareous substratum, dissected	į	  Somewhat limited   Depth to thick   cemented pan   Frost action	0.90	   Very limited   Depth to thick   cemented pan   Cutbanks cave   Dense layer	    1.00    1.00  0.50
Munising, calcareous substratum		Very limited   Depth to   saturated zone   Depth to thick   cemented pan   Frost action	  1.00    0.95    0.50	Very limited   Depth to thick   cemented pan   Depth to   saturated zone   Cutbanks cave   Dense layer	  1.00    1.00    1.00  0.50
Cookson	   40     	  Somewhat limited   Frost action   Depth to hard   bedrock	  0.50  0.06 	  Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
281E: Mongo, dissected	95   95     	   Very limited   Frost action   Low strength   Slope   Shrink-swell	  1.00  1.00  1.00	  Very limited   Slope   Too clayey   Cutbanks cave	  1.00  0.50  0.10
282B: Furlong	     50   	  Somewhat limited   Depth to hard   bedrock	      0.97   	  Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    1.00
Shingleton	   40     	  Very limited   Depth to hard   bedrock	    1.00   	  Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
282D: Furlong	     50     	  Somewhat limited   Depth to hard   bedrock   Slope	    0.97    0.37	  Very limited   Depth to hard   bedrock   Cutbanks cave   Slope	    1.00    1.00  0.37

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map		reets	Shallow excavati	ons
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
282D: Shingleton	   40       	Very limited Depth to hard bedrock Slope	    1.00    0.37	Very limited  Depth to hard  bedrock  Slope  Cutbanks cave	  1.00    0.37  0.10
284B: Steuben	   40     	   Somewhat limited   Depth to thick   cemented pan   Frost action	    0.99    0.50	cemented pan	  1.00    1.00  0.50
Blue Lake	   30 	  Not limited 		  Very limited   Cutbanks cave	1.00
Kalkaska	   20 	  Not limited 	   	  Very limited   Cutbanks cave	1.00
284D: Steuben	   40       	  Somewhat limited   Depth to thick   cemented pan   Frost action   Slope	    0.99    0.50  0.37	Very limited  Depth to thick  cemented pan  Cutbanks cave  Dense layer  Slope	    1.00    1.00  0.50  0.37
Blue Lake	   25   	  Somewhat limited   Slope 	0.37	Very limited Cutbanks cave Slope	  1.00  0.37
Kalkaska	   25   	  Somewhat limited   Slope 	    0.37 	Very limited Cutbanks cave Slope	  1.00  0.37
284E: Steuben	   40       	   Very limited   Slope   Depth to thick   cemented pan   Frost action	  1.00  0.99    0.50	Very limited  Depth to thick  cemented pan  Slope  Cutbanks cave  Dense layer	  1.00    1.00  1.00  0.50
Blue Lake	   30 	  Very limited   Slope 	    1.00	  Very limited   Slope   Cutbanks cave	  1.00  1.00
Kalkaska	   20   	  Very limited   Slope 	    1.00 	Very limited Slope Cutbanks cave	  1.00  1.00
285B: Halfaday	     50   	  Somewhat limited   Depth to   saturated zone	      0.19   	Very limited  Depth to  saturated zone  Cutbanks cave	  1.00    1.00

Table 12b.--Building Site Development--Continued

	of map	į	reets	   Shallow excavati   	ons.
	unit   	Rating class and limiting features	1	Rating class and   limiting features	Value
285B: Kinross	     40     	  Very limited   Depth to   saturated zone   Ponding   Frost action	:	  Very limited   Depth to   saturated zone   Cutbanks cave   Ponding	    1.00    1.00  1.00
286B: Greylock	     50 	    Somewhat limited   Frost action	1	    Somewhat limited   Cutbanks cave	      0.10
Cookson	   40   	  Somewhat limited   Frost action   Depth to hard   bedrock	:	  Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
287B: McMaster	     55   	  Somewhat limited   Depth to   saturated zone		  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00
Davies	   35         	   Very limited   Depth to   saturated zone   Frost action   Ponding   Large stones	1.00	saturated zone Cutbanks cave Ponding	  1.00    1.00  1.00  0.14
290A: Namur, very stony	   50   	  Very limited   Depth to hard   bedrock   Frost action	  1.00    0.50	bedrock	  1.00    0.10
Ruse, very stony	   40           	Very limited   Depth to hard   bedrock   Depth to   saturated zone   Frost action   Ponding	1.00    1.00    1.00	saturated zone	  1.00    1.00    1.00  0.10
292B: Mashek, sandy substratum	     90       	    Very limited   Depth to   saturated zone   Frost action		 	    1.00    1.00  0.50
296D: Islandlake	     55 	  Somewhat limited   Slope 	      0.16	  Very limited   Cutbanks cave   Slope	    1.00  0.16
McMillan	   35 	  Somewhat limited   Frost action   Slope	  0.50  0.16	  Very limited   Cutbanks cave   Slope	  1.00  0.16

Table 12b.--Building Site Development--Continued

	of	Local roads and st	reets	Shallow excavations	
	map			  -	
	unit	Rating class and	17721	Rating class and	17701
	 	limiting features		limiting features	Valu
296E: Islandlake	   55	  Verv limited		  Very limited	
		Slope	1.00		1.00
	ĺ			Cutbanks cave	1.00
McMillan	   35	  Verv limited		  Very limited	l I
		Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00
297B:	 	 		 	
Rubicon, severely	İ		i		i
burned	95	Not limited		Very limited	
	 	l		Cutbanks cave	1.00
297D:		 		 	
Rubicon, severely					İ
burned	95	!	0.26	Very limited	11 00
	 	Slope	0.26	Cutbanks cave	1.00
298B: Wurtsmith		  Comprihent limited		 	
Wul CSMICH	55	Depth to	0.19	Very limited   Depth to	1.00
		saturated zone		saturated zone	
	į	į	į	Cutbanks cave	1.00
Deford	   35	  Very limited		  Very limited	l I
		Depth to	1.00	: -	1.00
	ĺ	saturated zone	Ì	saturated zone	ĺ
		Ponding	1.00	!	1.00
	 	Frost action	0.50	Ponding 	1.00
299F:	į	į			į
Shelldrake	99	: -		Very limited   Cutbanks cave	
	 	Slope 	1.00	Slope	1.00
	į	į		_	į
300F: Shelldrake	   61	  Very limited		  Very limited	
211022424110	"-	Slope	1.00		1.00
	į		į	Slope	1.00
Dune land	   38	  Not rated		  Not rated	l I
					İ
301F: Cookson, dissected		  Vorum limited		  Vorus limited	
cookson, dissected	33	Slope	1.00	Very limited   Depth to hard	1.00
		Frost action	0.50	bedrock	
		Depth to hard	0.06	Slope	1.00
	 	bedrock		Cutbanks cave	0.10
Nykanen, dissected	35	  Very limited		  Very limited	
		Depth to	1.00		1.00
		saturated zone		bedrock	
	 	Slope Depth to soft	1.00	Depth to soft bedrock	1.00
		bedrock		Slope	1.00
	İ	Depth to hard	0.84	Depth to	1.00
		bedrock	!	saturated zone	
		Frost action	0.50		

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	 	reets	Shallow excavati   	ations	
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	
302B: Dillingham	   45     	    Not limited   	         	  Very limited   Cutbanks cave   Depth to thin   cemented pan   Dense layer	    1.00  0.99    0.50	
Kalkaska	   40 	  Not limited		  Very limited   Cutbanks cave	1.00	
302D: Dillingham	   52         	  Somewhat limited   Slope     	      0.37     	  Very limited   Cutbanks cave   Depth to thin   cemented pan   Dense layer   Slope	    1.00  0.99    0.50  0.37	
Kalkaska	   45   	  Somewhat limited   Slope 	0.37	  Very limited   Cutbanks cave   Slope	  1.00  0.37	
302E: Dillingham	   50       	  Very limited   Slope     	    1.00     	  Very limited   Slope   Cutbanks cave   Depth to thin   cemented pan   Dense layer	  1.00  1.00  0.99    0.50	
Kalkaska	   40 	  Very limited   Slope 	    1.00 	  Very limited   Slope   Cutbanks cave	  1.00  1.00	
302F: Dillingham	   50       	  Very limited   Slope 	    1.00   	Cutbanks cave Depth to thin cemented pan	  1.00  1.00  0.99 	
Kalkaska	   40   	  Very limited   Slope 	    1.00 	Dense layer    Very limited   Slope   Cutbanks cave	    1.00  1.00	
303B: Kiva	   55 	  Not limited		  Very limited   Cutbanks cave	1.00	
Trenary	   30   	  Somewhat limited   Frost action   Shrink-swell	  0.50  0.01		  0.50  0.10	
303D: Kiva	     55 	    Somewhat limited   Slope 	      0.16	    Very limited   Cutbanks cave   Slope	    1.00  0.16	

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map		reets	Shallow excavati	ons
	unit   	Rating class and   limiting features	Value	Rating class and   limiting features	Value
303D: Trenary	     30   	  Somewhat limited   Frost action   Slope   Shrink-swell	    0.50  0.16  0.01	Somewhat limited   Dense layer   Slope   Cutbanks cave	    0.50  0.16  0.10
303E:	 	 			
Kiva	   55   	  Very limited   Slope 	1.00	   Slope   Cutbanks cave	  1.00  1.00
Trenary	   30     	  Very limited   Slope   Frost action   Shrink-swell	  1.00  0.50  0.01	  Very limited   Slope   Dense layer   Cutbanks cave	  1.00  0.50  0.10
305B: Wurtsmith	     55     	  Somewhat limited   Depth to   saturated zone	    0.19 	  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00
Meehan	   40   	  Very limited   Depth to   saturated zone   Frost action	  1.00    0.50	   Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    1.00
306C: Deerton, dissected	   35       	  Somewhat limited   Depth to hard   bedrock 	    0.01     	   Very limited   Depth to hard   bedrock   Cutbanks cave   Depth to soft   bedrock	  1.00    1.00  0.84
Tokiahok, dissected	   30       	   Somewhat limited   Depth to thick   cemented pan   Slope	  0.90    0.16	   Very limited   Depth to thick   cemented pan   Cutbanks cave   Dense layer   Slope	  1.00    1.00  0.50  0.16
Jeske, dissected	   20           	  Very limited   Depth to   saturated zone   Frost action   Depth to hard   bedrock	  1.00    0.50  0.35	Very limited   Depth to hard   bedrock   Depth to   saturated zone   Cutbanks cave   Depth to soft   bedrock	  1.00    1.00    1.00  0.99
307B: Rubicon, very deep water table	         95 	        Not limited   		  -  -  -  Very limited   Cutbanks cave	        1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	of map			Shallow excavations	
	unit   	Rating class and limiting features	Value	Rating class and   limiting features	Value
307D: Rubicon, very deep water table	       95   	    Somewhat limited   Slope 	        0.37	    Very limited   Cutbanks cave   Slope	      1.00  0.37
308B: Rubicon	     55 	    Not limited 	   	  Very limited   Cutbanks cave	1.00
Sultz	   40 	  Not limited 	   	  Very limited   Cutbanks cave	1.00
308D: Rubicon	     55   	  Somewhat limited   Slope 	      0.37	  Very limited   Cutbanks cave   Slope	1.00
Sultz	   40 	  Somewhat limited   Slope 	    0.37 	  Very limited   Cutbanks cave   Slope	  1.00  0.37
309B: Rubicon, deep water table	       95   	    Not limited   	         	   Very limited   Cutbanks cave   Depth to   saturated zone	        1.00  0.47
309D: Rubicon, deep water table	     95     	    Somewhat limited   Slope   	        0.37	  Very limited   Cutbanks cave   Depth to   saturated zone   Slope	      1.00  0.47    0.37
310B: Kalkaska, burned	     90 	    Not limited   	     	    Very limited   Cutbanks cave	      1.00
310D: Kalkaska, burned	     95 	  Somewhat limited   Slope 	      0.37	  Very limited   Cutbanks cave   Slope	  1.00  0.37
310E: Kalkaska, burned	     95   	    Very limited   Slope 	      1.00	   Very limited   Slope   Cutbanks cave	    1.00  1.00
311B: Kalkaska, very deep water table, burned	       95	      Not limited		    Very limited   Cutbanks cave	1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map		reets	Shallow excavations	
	unit   		Value	   Rating class and   limiting features	Value
311D: Kalkaska, very deep water table, burned	       95 	    Somewhat limited   Slope	          0.37	  Very limited   Cutbanks cave   Slope	        1.00  0.37
312B: Islandlake, burned	     95 	    Not limited 	       	    Very limited   Cutbanks cave	      1.00
312D: Islandlake, burned	     95   	  Somewhat limited   Slope	    0.16 	  Very limited   Cutbanks cave   Slope	  1.00  0.16
313B: Kalkaska, deep water table, burned	:	      Not limited 	         	 	        1.00
314B: Blue Lake, very deep water table, burned		    Not limited   	       	    Very limited   Cutbanks cave	      1.00
315B: Blue Lake, deep water table, burned	     95   	    Not limited   	         	   Very limited   Cutbanks cave   Depth to   saturated zone	    1.00  0.47
316B: Blue Lake, burned	     95 	    Not limited   	     	  Very limited   Cutbanks cave	1.00
316D: Blue Lake, burned	   95 	  Somewhat limited   Slope	    0.37 	  Very limited   Cutbanks cave   Slope	  1.00  0.37
317B: Kalkaska, very deep water table	       95 	    Not limited 	         	  -  Very limited   Cutbanks cave	        1.00
317D: Kalkaska, very deep water table	     95 	  Somewhat limited   Slope	      0.37	  Very limited   Cutbanks cave   Slope	      1.00  0.37
318B: Islandlake, very deep water table	       95 	      Not limited 	         	  -  Very limited   Cutbanks cave	        1.00

Table 12b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	 		Shallow excavati   	ons
		Rating class and limiting features	Value	Rating class and   limiting features	Value
318D: Islandlake, very deep water table	       95 	    Somewhat limited   Slope 	        0.16	  Very limited   Cutbanks cave   Slope	      1.00  0.16
319B: Islandlake	     95 	    Not limited 	     	    Very limited   Cutbanks cave	
319D: Islandlake	     95   	  Somewhat limited   Slope 	      0.16 	  Very limited   Cutbanks cave   Slope	    1.00  0.16
319E: Islandlake	   95     	  Very limited   Slope 	    1.00 	  Very limited   Slope   Cutbanks cave	  1.00  1.00
319F: Islandlake	   95     	  Very limited   Slope 	    1.00 	  Very limited   Slope   Cutbanks cave	  1.00  1.00
320B: Kalkaska, deep water table	1	    Not limited     	         	 	    1.00  0.47
321B: Kalkaska	   50 	  Not limited 	 	  Very limited   Cutbanks cave	1.00
Deerton	   45         	  Somewhat limited   Depth to hard   bedrock 	  0.01       	  Very limited   Depth to hard   bedrock   Cutbanks cave   Depth to soft   bedrock	  1.00    1.00  0.84
321D: Kalkaska	   50 	  Somewhat limited   Slope 	    0.37	  Very limited   Cutbanks cave   Slope	  1.00  0.37
Deerton	   45         	  Somewhat limited   Slope   Depth to hard   bedrock	  0.37  0.01   	Very limited   Depth to hard   bedrock   Cutbanks cave   Depth to soft   bedrock   Slope	  1.00    1.00  0.84 

### Table 13a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and   limiting features	Value	   Rating class and   limiting features	Value
10: Beaches	100	    Not rated		    Not rated	   
11C:		 			
Deer Park	90         	Very limited   Filtering   capacity   Seepage, bottom   layer	  1.00    1.00	Very limited Seepage Slope	  1.00  0.68   
11E: Deer Park	   95       	  Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	  1.00    1.00    1.00	  Very limited   Slope   Seepage 	  1.00  1.00     
11F: Deer Park	98	  Very limited   Filtering   capacity   Slope   Seepage, bottom   layer	  1.00    1.00  1.00	  Very limited   Slope   Seepage 	  1.00  1.00   
12B: Rubicon	   90       	  Very limited   Filtering   capacity   Seepage, bottom   layer	  1.00    1.00	   Very limited   Seepage   Slope 	  1.00  0.08 
12D: Rubicon	   95       	  Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	  1.00    1.00    0.37	  Very limited   Seepage   Slope 	  1.00  1.00 
12E: Rubicon	   95         	  Very limited   Filtering   capacity   Slope   Seepage, bottom   layer	    1.00    1.00  1.00	  Very limited   Slope   Seepage   	    1.00  1.00 

Table 13a.--Sanitary Facilities--Continued

L3B: Kalkaska L3D: Kalkaska	       	Rating class and limiting features  Very limited Filtering capacity	Value 	Rating class and limiting features	Value
Kalkaska	       94     	Rating class and limiting features  Very limited Filtering capacity Seepage, bottom	     	limiting features	Valu
Kalkaska	       	Filtering capacity Seepage, bottom	      1.00	    Very limited	 
Kalkaska	       	Filtering capacity Seepage, bottom	    1.00	  Very limited	
 	       	Filtering capacity Seepage, bottom	1.00		
		Seepage, bottom		Seepage	1.00
	     			Slope	0.08
	 	1 4 1	1.00 	 	 
	96	  Very limited	 	  Very limited	 
	50	Filtering	1.00	_	1.00
		capacity			1.00
i	   	Seepage, bottom	1.00	-   	j I
!		Slope	0.37		į
.3E:	 	 	 	 	 
Kalkaska	100	  Very limited	İ	  Very limited	İ
İ	ĺ	Filtering	1.00	Slope	1.00
		capacity		Seepage	1.00
		Slope	1.00		
	   	Seepage, bottom   layer 	1.00   	   	   
L5A:			į		į
Croswell 92	92	Very limited		Very limited	
	 	Depth to saturated zone	1.00		1.00
l	 	saturated zone   Filtering	1.00	Depth to saturated zone	1.00
	 	capacity	1.00	Sacuraced Zone	 
			1.00		<u> </u> 
  L6A:		 	 	 	 
Paquin	90	Very limited		Very limited	
	 	Depth to cemented	1.00	Depth to cemented pan	1.00
	 	pan Depth to	1.00	-	1.00
	! 	saturated zone			1.00
	   	!	1.00	saturated zone	
L7A:					
Au Gres	92	Very limited   Depth to	  1.00	Very limited   Seepage	  1.00
	 	saturated zone	1.00 		1.00
	! 	Filtering	1.00	saturated zone	
	İ	capacity	İ		İ
	 	Seepage, bottom   layer	1.00 	 	 
  8:	 	 	 	 	 
Kinross	92	Very limited		Very limited	
		Depth to	1.00		1.00
	 	saturated zone	1 00	-	1.00
	 	Filtering   capacity	1.00	saturated zone Ponding	  1.00
	 	Seepage, bottom	1.00	_	1.00
		layer		content	
		Ponding	1.00		İ

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption field	ds	Sewage lagoons		
	unit   	!	Value	   Rating class and   limiting features	Value	
19: Deford	   92             	  Very limited   Depth to   saturated zone   Filtering   capacity   Seepage, bottom   layer   Ponding	    1.00    1.00    1.00	Depth to   saturated zone   Ponding	    1.00  1.00    1.00  1.00	
21A: Ingalls	   90       	  Very limited   Depth to   saturated zone   Slow water   movement	    1.00    1.00		    1.00  1.00 	
24B: Munising	   90           	  Very limited   Depth to cemented   pan   Depth to   saturated zone	    1.00    1.00 	pan Depth to saturated zone Slope	  1.00    1.00    0.32  0.08	
25B: Munising	   55         	Very limited Depth to cemented pan Depth to saturated zone		pan Depth to saturated zone Slope	    1.00    1.00    0.32  0.08	
Yalmer	   30         	Very limited Depth to cemented pan Depth to saturated zone Filtering capacity		pan Seepage Depth to saturated zone	  1.00    1.00  1.00    0.32	
25D: Munising	   55         	  Very limited   Depth to cemented   pan   Depth to   saturated zone   Slope		pan Depth to saturated zone Slope	    1.00    1.00    1.00  0.08	
Yalmer	   30           	Very limited   Depth to cemented   pan   Depth to   saturated zone   Filtering   capacity   Slope	  1.00    1.00    1.00    0.37	pan Seepage Depth to saturated zone	  1.00  1.00  1.00  1.00 	

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	f   absorption fields   p		Sewage lagoons   	
	unit	!	Value	   Rating class and   limiting features	Value
31D: Trenary	   85     	  Somewhat limited  Slow water   movement  Slope	    0.99    0.16		      1.00  0.32
33: Ensley	   90           	   Very limited   Depth to   saturated zone   Ponding   Slow water   movement	    1.00    1.00  0.50		  1.00  1.00  1.00 
35B: Munising, calcareous substratum		    Very limited   Depth to cemented   pan   Depth to   saturated zone	      1.00    1.00   	saturated zone Seepage	      1.00    1.00    0.68  0.08
Yalmer, calcareous substratum	   30         	Very limited Depth to cemented pan Depth to saturated zone Filtering capacity	  1.00    1.00    1.00	saturated zone	  1.00    1.00  1.00    0.08
Frohling, calcareous substratum	:	Very limited Depth to cemented pan Slow water movement	    1.00    0.50		    1.00    0.68  0.50
37B: Grand Sable	     90   	  Very limited   Seepage, bottom   layer	      1.00	  Very limited   Seepage	      1.00
37E: Grand Sable	98	  Very limited   Slope   Seepage, bottom   layer	    1.00  1.00		    1.00  1.00

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of	absorption fiel	ds	Sewage lagoons 		
	unit	!		 		
		Rating class and limiting features		Rating class and limiting features	Value	
	İ		İ		İ	
38B:						
Rhody	60	Very limited	:	Very limited		
		Depth to	1.00	_	1.00	
	 	saturated zone Filtering	1.00	bedrock   Seepage	1.00	
	! 	capacity		Depth to	1.00	
	İ	Seepage, bottom	1.00	saturated zone	į	
		layer		Ponding	1.00	
		Depth to bedrock	:	Depth to hard	0.99	
		Ponding	1.00	bedrock	!	
Towes	30	  Very limited		  Very limited		
10web	30	Depth to bedrock	:	Depth to hard	1.00	
	<u> </u>	Depth to	1.00	bedrock	i	
	İ	saturated zone	į	Depth to soft	1.00	
		Filtering	1.00	bedrock		
		capacity		Seepage	1.00	
	 	Seepage, bottom	1.00	Depth to saturated zone	1.00	
	 	rayer		sacuraced zone		
40B:	<u> </u>		i		i	
Waiska, very stony	90	Very limited		Very limited		
		Filtering	1.00		1.00	
		capacity		Slope	0.08	
	 	Seepage, bottom   layer	1.00			
42:	 	 				
Davies	90	Very limited		Very limited		
		Depth to	1.00	Seepage	1.00	
	 	saturated zone		Depth to	1.00	
	 	Filtering   capacity	1.00	saturated zone Ponding	1.00	
	! 	Seepage, bottom	1.00	Organic matter	1.00	
	İ	layer	i	content	i	
		Ponding	1.00	Large stones	0.56	
		Large stones	0.14			
46:	 	 		 		
Jacobsville, very	 	 		 		
stony	90	  Very limited	i	  Very limited	i	
	ĺ	Depth to	1.00	Depth to hard	1.00	
		saturated zone		bedrock		
		Depth to bedrock		Depth to	1.00	
	 	Ponding   Slow water	1.00  0.50	saturated zone Ponding	1.00	
	! 	movement		Organic matter	1.00	
	İ		i	content	i	
	 	 		Seepage	0.50	
47C:	 				į	
Deerton	55 	Very limited   Filtering	1.00	Very limited   Depth to hard	1.00	
	 	capacity		Depth to hard   bedrock	1.00	
	' 	Seepage, bottom	1.00	Depth to soft	1.00	
	İ	layer	i	bedrock	i	
		Depth to bedrock	1.00	Seepage	1.00	
		Slope	0.01	Slope	1.00	

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of	Septic tank   absorption fiel	ds	Sewage lagoons	ı
	map  unit	 			
	   	Rating class and limiting features	Value	Rating class and limiting features	Valu
47C:	 	l		 	
Au Train	30	  Very limited		  Very limited	i
	İ	Depth to bedrock	1.00	Depth to hard	1.00
		Depth to	1.00	bedrock	
		saturated zone		Depth to soft	1.00
	 	Seepage, bottom	1.00	bedrock   Seepage	1.00
				Depth to	1.00
	İ		į	saturated zone	İ
	 	 		Slope	0.32
47E:					
Deerton	55	Very limited	1 00	Very limited	1.00
	 	Filtering   capacity	1.00	Depth to hard bedrock	1.00
		Seepage, bottom	1.00	Depth to soft	1.00
	İ	layer	į	bedrock	j
		Depth to bedrock	1.00	Seepage	1.00
	 	Slope 	1.00	Slope 	1.00
Au Train	30	  Very limited	İ	  Very limited	i
	ĺ	Depth to bedrock	1.00	Depth to hard	1.00
		Depth to	1.00	bedrock	
		saturated zone		Depth to soft	1.00
	 	Seepage, bottom	1.00	bedrock   Seepage	1.00
		Slope	0.63	Depth to	1.00
	İ	_	į	saturated zone	İ
	 	 		Slope	1.00
48:					
Burt	90	Very limited	1 00	Very limited	11 00
	 	Depth to bedrock Depth to	1.00	Depth to hard bedrock	1.00
		saturated zone		Seepage	1.00
	İ	Seepage, bottom	1.00	Depth to	1.00
		layer	[	saturated zone	
	 	Ponding 	1.00	Ponding 	1.00
49B:	į		į		į
Cookson	90	Very limited   Depth to bedrock	1 00	Very limited	1.00
	 	Slow water	0.50	Depth to hard bedrock	1
		movement		Seepage	0.50
51:	 	 		 	
Nahma	50	Very limited	[	Very limited	
		Depth to	1.00	Depth to hard	1.00
	 	saturated zone	1 00	bedrock	1.00
	 	Depth to bedrock Ponding	1.00	Depth to saturated zone	1
		Slow water	0.50	Ponding	1.00
	į	movement	į	Organic matter	1.00
		[	[	content	
				Seepage	0.50

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct.	Septic tank   absorption fiel	ds	Sewage lagoons	
	map				
	unit			İ	
		Rating class and	Value	Rating class and	Value
	<u> </u>	limiting features	<u> </u>	limiting features	<u>i                                      </u>
51: Ruse	   40	  Very limited		  Very limited	
	i	Depth to bedrock	1.00		1.00
	i	Depth to	1.00	bedrock	1
		saturated zone		Depth to	1.00
	i	Seepage, bottom	1.00	saturated zone	i
	İ	layer	i	Seepage	1.00
	İ	Ponding	1.00	Ponding	1.00
52B:		l		 	
Summerville	   85	  Very limited		  Very limited	
	İ	Depth to bedrock	1.00	Depth to hard	1.00
	İ	 	i	bedrock	i
	İ	İ	į	Seepage	0.50
57 <b>:</b>		l		 	
Carbondale	30	  Very limited		  Very limited	
	İ	Depth to	1.00	Organic matter	1.00
	İ	saturated zone	İ	content	İ
		Subsidence	1.00	Depth to	1.00
		Seepage, bottom	1.00	saturated zone	
		layer		Seepage	1.00
		Ponding	1.00	Ponding	1.00
Lupton	   30	  Very limited		  Very limited	
		Depth to	1.00	Organic matter	1.00
	İ	saturated zone	i	content	i
	İ	Subsidence	1.00	Depth to	1.00
		Seepage, bottom	1.00	saturated zone	
		layer		Seepage	1.00
		Ponding	1.00	Ponding	1.00
Tawas	   30	  Very limited		  Very limited	
		Depth to	1.00	Seepage	1.00
	İ	saturated zone	İ	Depth to	1.00
	İ	Seepage, bottom	1.00	saturated zone	i
	ĺ	layer	İ	Ponding	1.00
		Subsidence	1.00	Organic matter	1.00
		Ponding	1.00	content	
58:	 	 		 	
Dawson	30	  Very limited		  Very limited	i
		Depth to	1.00	Seepage	1.00
		saturated zone		Depth to	1.00
		Seepage, bottom	1.00	saturated zone	
		layer		Ponding	1.00
		Subsidence	1.00	Organic matter	1.00
	 	Ponding	1.00	content	
Greenwood	30	  Very limited		  Very limited	
		Depth to	1.00	Organic matter	1.00
		saturated zone		content	
		Subsidence	1.00	Depth to	1.00
		Seepage, bottom	1.00	saturated zone	
		layer	[	Seepage	1.00
	İ	Ponding	1.00	Ponding	1.00

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and   limiting features	Value	   Rating class and   limiting features	Value
					T
58: Loxley	   30 	  Very limited   Depth to	1.00	  Very limited   Organic matter	1.00
	     	saturated zone   Subsidence   Seepage, bottom	1.00	content Depth to saturated zone	  1.00    1.00
	 	layer   Ponding	1.00	Seepage   Ponding	1.00
50					
59: Chippeny	   55 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to hard   bedrock	1.00
	 	Depth to bedrock	1.00	Depth to	1.00
		Ponding	1.00	saturated zone	
	 	Slow water   movement	1.00	Seepage Ponding	1.00
	   	 	 	Organic matter content	1.00
Nahma	30	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to hard   bedrock	1.00
		Depth to bedrock	1.00	Depth to	1.00
		Ponding	1.00	saturated zone	
	   	Slow water   movement	0.50	Ponding   Organic matter   content	1.00
				Seepage	0.50
60:	 	 			 
Histosols	50	Very limited	:	Very limited	į
	 	Ponding Depth to	1.00  1.00	Ponding Organic matter	1.00
		saturated zone		content	
		Subsidence	1.00	Depth to	1.00
	 	Seepage, bottom   layer	1.00	saturated zone Seepage	1.00
Agronta		  Very limited		  Very limited	ĺ
Aquents	30	Ponding	1.00	Ponding	1.00
	ĺ	Depth to	1.00	Depth to	1.00
	   	saturated zone Slow water movement	0.50	saturated zone Seepage	0.50
61: Pits	    100	    Not rated		    Not rated	
62F: Udipsamments	     50	    Not rated	   	    Not rated	   
Udorthents	   50	  Not rated		  Not rated	
64B:	 	 		 	
Kiva	90	: -	:	Very limited	
	   	Filtering   capacity   Seepage, bottom   layer	1.00    1.00	Seepage   Slope 	1.00  0.08

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	of absorption fields		Sewage lagoons	
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
64D: Kiva	   90         	  Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	    1.00    1.00    0.16	  Very limited   Seepage   Slope 	    1.00  1.00   
65D: Jeske, bedrock terrace	   45             	   Very limited   Depth to bedrock   Depth to   saturated zone   Seepage, bottom   layer	    1.00  1.00    1.00	Very limited   Depth to hard   bedrock   Depth to soft   bedrock   Seepage   Depth to   saturated zone   Slope	   1.00   1.00   1.00   1.00   1.00   0.08
Gongeau, bedrock terrace	25             	Very limited   Depth to bedrock   Depth to   saturated zone   Seepage, bottom   layer	  1.00  1.00    1.00     	Very limited Depth to hard bedrock Depth to soft bedrock Seepage Depth to saturated zone Organic matter content	  1.00  1.00  1.00  1.00  1.00
Deerton, bedrock terrace	   20         	  Very limited   Filtering   capacity   Seepage, bottom   layer   Depth to bedrock   Slope	  1.00    1.00    1.00  0.84	  Very limited   Depth to hard   bedrock   Depth to soft   bedrock   Seepage   Slope	  1.00    1.00    1.00  1.00
65F: Jeske, bedrock terrace	   45           	   Very limited   Depth to bedrock   Depth to   saturated zone   Seepage, bottom   layer	   1.00  1.00   1.00   1.00	Very limited   Depth to hard   bedrock   Depth to soft   bedrock   Seepage   Depth to   saturated zone   Slope	   1.00   1.00   1.00   1.00   0.32

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons   	
	unit   	Rating class and   limiting features	Value	   Rating class and   limiting features	Value
65F: Gongeau, bedrock terrace	   25   1   1   1   1   1   1   1	   Very limited   Depth to bedrock   Depth to   saturated zone   Seepage, bottom   layer	      1.00  1.00    1.00	Very limited   Depth to hard   bedrock   Depth to soft   bedrock   Seepage   Depth to   saturated zone   Organic matter   content	      1.00    1.00    1.00    1.00
Deerton, bedrock terrace	   20         	Very limited   Filtering   capacity   Seepage, bottom   layer   Depth to bedrock   Slope	  1.00    1.00    1.00  1.00	Very limited   Depth to hard   bedrock   Depth to soft   bedrock   Seepage   Slope	  1.00    1.00    1.00  1.00
66D: Ruse, bedrock terrace	   40           	  Very limited   Depth to bedrock   Depth to   saturated zone	    1.00  1.00       	Very limited   Depth to hard   bedrock   Depth to soft   bedrock   Depth to   saturated zone   Seepage	   1.00   1.00   1.00   1.00   0.50
Ensign, bedrock terrace	   30           	  Very limited   Depth to bedrock   Depth to   saturated zone 	  1.00  1.00         	Very limited Depth to hard bedrock Depth to soft bedrock Depth to saturated zone Seepage Slope	  1.00    1.00    1.00    0.50  0.32
Nykanen, bedrock terrace	   20           	  Very limited   Depth to bedrock   Depth to   saturated zone   Slope	    1.00  1.00    0.63   	Very limited   Depth to hard   bedrock   Depth to soft   bedrock   Depth to   saturated zone   Slope   Seepage	   1.00   1.00   1.00   1.00   1.00

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and   limiting features	Value
66F: Ruse, bedrock	   	  - 	   	  - 	   
terrace	40         	Very limited		Very limited   Depth to hard   bedrock   Depth to soft   bedrock   Depth to saturated zone	  1.00    1.00    1.00
Engign hodrogk				Seepage 	0.50
Ensign, bedrock terrace	   30             	  Very limited   Depth to bedrock   Depth to   saturated zone 	  1.00  1.00           	Very limited  Depth to hard  bedrock  Depth to soft  bedrock  Depth to  saturated zone  Seepage  Slope	  1.00    1.00    1.00    0.50  0.08
Nykanen, bedrock terrace	20   20         	  Very limited   Depth to bedrock   Depth to   saturated zone   Slope 		_	  1.00    1.00    1.00    1.00  0.50
68: Pits, quarry	100	    Not rated		    Not rated	
69B: Escanaba	     85     	  Somewhat limited   Slow water   movement	      0.92 	  Very limited   Seepage   Slope	    1.00  0.08
71A: Evart	   70               	Very limited   Flooding   Depth to   saturated zone   Filtering   capacity   Seepage, bottom   layer   Ponding	  1.00  1.00    1.00    1.00	   Very limited   Flooding   Seepage   Depth to   saturated zone   Ponding	  1.00  1.00  1.00    1.00
Sturgeon	20             	Very limited   Flooding   Depth to   saturated zone   Filtering   capacity   Seepage, bottom   layer	  1.00  1.00    1.00    1.00	Very limited   Flooding   Seepage   Depth to   saturated zone	  1.00  1.00  1.00   

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. Septic tank of absorption fields map		Sewage lagoons   		
	unit   	!	Value	   Rating class and   limiting features	Value
72E: Deerton, dissected	40	  Very limited	 	  Very limited	 
		Filtering	1.00	Depth to hard	1.00
		capacity		bedrock	
	 	Seepage, bottom	1.00	Depth to soft bedrock	1.00
	 	layer   Depth to bedrock	  1.00	Slope	1.00
		Slope	1.00	-	1.00
Tokiahok, dissected	   30	  Verv limited	 	  Very limited	 
		Depth to cemented		_	1.00
	ĺ	pan	ĺ	pan	ĺ
		Filtering	1.00	Slope	1.00
	 	capacity	  1.00	Seepage	1.00
	 	Slope 	<b>1.</b> 00	 	 
Trout Bay, dissected	15	  Very limited	İ	  Very limited	
	İ	Depth to	1.00	Depth to hard	1.00
		saturated zone		bedrock	
	 	Depth to bedrock	!	Depth to soft bedrock	1.00
	 	Slope Seepage, bottom	1.00  1.00	Organic matter	1.00
		layer		content	
	İ	_	İ	Slope	1.00
			ļ	Depth to	1.00
	 	l	 	saturated zone	 
72F:	 	 	 	 	 
Deerton, dissected	40	  Very limited	İ	  Very limited	
	ĺ	Filtering	1.00	Depth to hard	1.00
		capacity		bedrock	
	 	Slope   Seepage, bottom	1.00  1.00	Depth to soft bedrock	1.00
	 	layer	1.00 	Slope	1.00
			1.00	Seepage	1.00
	ĺ	İ	ĺ		ĺ
Tokiahok, dissected	25	Very limited		Very limited	
	 	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	 	Filtering	1.00	_	1.00
	İ	capacity	į	Seepage	1.00
		Slope	1.00		
Trout Day discosted		 	 	  Vamus limited	 
Trout Bay, dissected	20 	Depth to	1.00	Very limited   Depth to hard	1.00
		saturated zone		bedrock	
	ĺ	Slope	1.00	Depth to soft	1.00
		Depth to bedrock		bedrock	
	 	Seepage, bottom	1.00	Organic matter	1.00
	 	layer 	 	content   Slope	  1.00
				Depth to	1.00
				saturated zone	
865					
76C: Garlic, dissected	   40	  Very limited	 	  Very limited	 
Garrio, dissected	<del>1</del> 10	very limited   Filtering	  1.00	Very limited   Seepage	1.00
		, <del></del> 5			• •
	İ	capacity		Slope	1.00
	 	capacity Seepage, bottom	  1.00	Slope 	1.00 

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption field	is	Sewage lagoons	
	unit   	· ————————————————————————————————————	Value	Rating class and limiting features	Value
76C: Blue Lake, dissected	     30   	! <del>-</del>	      1.00 	Very limited Seepage Slope	      1.00  1.00
Voelker, dissected	20       	   Very limited   Depth to cemented   pan 		pan Seepage	  1.00    1.00  1.00
76E: Garlic, dissected	   40       	Filtering capacity Seepage, bottom layer	    1.00    1.00 	Very limited Slope Seepage	    1.00  1.00   
Blue Lake, dissected	   30     		  1.00    1.00	-	  -  1.00  1.00
Voelker, dissected	   20       	Depth to cemented pan		pan	  1.00    1.00  1.00
76F: Garlic, dissected	   <b>4</b> 0     	Filtering   capacity   Slope	  1.00    1.00  1.00	-	    1.00  1.00 
Blue Lake, dissected	   30   	  Very limited   Slope   Seepage, bottom   layer	  -  1.00  1.00	Very limited Slope Seepage	    1.00  1.00
Voelker, dissected	   20       	   Very limited   Depth to cemented   pan   Slope 		pan Slope	  1.00    1.00  1.00
77B: Garlic	   40     	capacity	  1.00    1.00		    1.00  0.08

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct.   of  map	<u>-</u>	ds	Sewage lagoons   	
	unit   	·		   Rating class and   limiting features	Value
77B:	ĺ		ĺ		ĺ
Blue Lake	30	Very limited		Very limited	
			1.00		1.00
	 	layer	 	Slope	0.08
Voelker	20	  Very limited	 	  Very limited	 
		Depth to cemented		_	1.00
	ĺ	pan	ĺ	pan	ĺ
					1.00
				Slope	0.08
77D:	 	 	 	 	 
Garlic	40	  Very limited	 	  Very limited	 
		-	1.00	_	1.00
	İ	capacity	İ	Slope	1.00
			1.00		
		layer			
	 	Slope	0.16	 	 
Blue Lake	30	  Very limited	 	  Very limited	! 
	İ		1.00	-	1.00
		layer		Slope	1.00
		Slope	0.16		
Voelker		  Very limited	 	  Very limited	 
voerker	20	Depth to cemented		_	  1.00
		pan		pan	
	İ	! <del>-</del>	0.16	Seepage	1.00
			ļ	Slope	1.00
77E:		  -		 	
Garlic	   40	  Very limited	 	  Very limited	l I
			1.00	_	1.00
	İ	capacity	į	Seepage	1.00
		Slope	1.00		
			1.00		
	 	layer	 	 	 
Blue Lake	30	  Very limited	 	  Very limited	 
			1.00		1.00
	ĺ	Seepage, bottom	1.00	Seepage	1.00
		layer			
Voelker		  Very limited		  Very limited	 
voerker	20	Depth to cemented			1
		pan		pan	
	İ	Slope	1.00	Slope	1.00
			ļ	Seepage	1.00
00.		 	 	 	 
88: Cathro	   55	  Very limited	 	  Very limited	 
	, JJ	-	1.00	Depth to	1.00
	İ	saturated zone		saturated zone	
		Subsidence	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
		Slow water	0.50	Organic matter	1.00
		movement		content	

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	absorption fiel	ds	Sewage lagoons   	
		Rating class and   limiting features	Value	Rating class and   limiting features	Value
88: Ensley	   35           	   Very limited   Depth to   saturated zone   Ponding   Slow water   movement	    1.00    1.00  0.50	Very limited   Depth to   saturated zone   Ponding   Organic matter   content   Seepage	    1.00    1.00  1.00    0.50
93: Tawas	   70           	Very limited   Depth to   saturated zone   Seepage, bottom   layer   Subsidence   Ponding	  1.00    1.00    1.00  1.00	Very limited   Seepage   Depth to   saturated zone   Ponding   Organic matter   content	  1.00  1.00    1.00  1.00
Deford	20             	Very limited    Depth to   saturated zone   Filtering   capacity   Seepage, bottom   layer   Ponding	  1.00    1.00    1.00 	Very limited Seepage Depth to saturated zone Ponding Organic matter content	  1.00  1.00    1.00  1.00
95B: Liminga	   90       	  Very limited   Filtering   capacity   Seepage, bottom   layer	  1.00    1.00	  Very limited   Seepage   Slope 	  1.00  0.08
104C: Fence, dissected	     90       	Very limited Depth to saturated zone Slow water movement	    1.00    1.00	  Very limited   Depth to   saturated zone   Slope   Seepage	    1.00    1.00  0.50
109D: Rousseau	   50         	Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	  1.00    1.00    0.37	   Very limited   Seepage   Slope 	  1.00  1.00   
Dawson	   45           	Very limited   Depth to   saturated zone   Seepage, bottom   layer   Subsidence   Ponding	  1.00    1.00    1.00  1.00	Very limited   Seepage   Depth to   saturated zone   Ponding   Organic matter   content	  1.00  1.00    1.00  1.00

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	:	ds	Sewage lagoons   	
	unit	İ		İ	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
109F:	 	 		 	
Rousseau	55	  Very limited	i	  Very limited	İ
	ĺ	Filtering	1.00	Seepage	1.00
		capacity		Slope	1.00
		Seepage, bottom	1.00		
		layer			
	 	Slope	1.00	 	1
Dawson	40	  Very limited		  Very limited	
		Depth to	1.00	Seepage	1.00
	İ	saturated zone	İ	Depth to	1.00
		Seepage, bottom	1.00	saturated zone	
		layer		Ponding	1.00
		Subsidence	1.00	Organic matter	1.00
	 	Ponding	1.00	content	
125B:	 	 		 	1
Stutts	65	  Very limited		  Very limited	i
	İ	Filtering	1.00	Seepage	1.00
	ĺ	capacity	İ	Slope	0.08
		Seepage, bottom	1.00		
		layer		 	
Kalkaska	   35	  Very limited		  Very limited	
		Filtering	1.00	Seepage	1.00
	İ	capacity	İ		İ
	ĺ	Seepage, bottom	1.00		
		layer		1	
125D:	 	 		 	
Stutts	65	  Very limited	j	  Very limited	j
		Filtering	1.00	Seepage	1.00
		capacity		Slope	1.00
		Seepage, bottom	1.00	l I	
	 	layer   Slope	0.37	 	I
		51090		 	
Kalkaska	25	Very limited	į	Very limited	j
		Filtering	1.00	Seepage	1.00
		capacity		Slope	1.00
	 	Seepage, bottom	1.00		l
	 	Slope	0.37	 	
	İ				i
125E:					
Stutts	55	Very limited		Very limited	
	 	Filtering	1.00	Slope	1.00
	l I	capacity Slope	1.00	Seepage	1.00
		Seepage, bottom	1.00	 	
	İ	layer	i		i
Wallacek:		 		 	
Kalkaska	45	Very limited   Filtering	1.00	Very limited   Slope	1.00
	! 	capacity		Siope   Seepage	1.00
	İ	Slope	1.00		
	İ	Seepage, bottom	1.00		i
		layer			

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	of map	Pct.   Septic tank of   absorption fields map   unit		Sewage lagoons   		
	unit   		Value	Rating class and limiting features	Value	
135B: Munising, calcareous substratum		  Very limited   Depth to cemented   pan   Depth to   saturated zone		saturated zone	        1.00    1.00    0.68	
Ensley	   25           	   Very limited   Depth to   saturated zone   Ponding   Slow water   movement	  1.00    1.00  0.50 	saturated zone Ponding Organic matter content	  1.00    1.00  1.00    0.50	
145C: Munising, dissected, very stony		   Very limited   Depth to cemented   pan   Depth to   saturated zone	    1.00    1.00   	saturated zone Slope	    1.00    1.00    1.00  0.08	
Yalmer, dissected, very stony	   35           	   Very limited   Depth to cemented   pan   Depth to   saturated zone   Filtering   capacity		Depth to saturated zone	  1.00  1.00  1.00  1.00	
146B: Munising, stony	   60       	  Very limited   Depth to cemented   pan   Depth to   saturated zone	    1.00    1.00 	saturated zone Seepage	  1.00    1.00    0.08  0.08	
Skanee, stony	   30       	Depth to cemented pan		pan Depth to saturated zone	  1.00    1.00    0.50	
147A: Skanee, very stony	   55         	  Very limited   Depth to cemented   pan   Depth to   saturated zone		pan Depth to saturated zone	    1.00    1.00    0.50	

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit 	Rating class and	Value		Value
	<u> </u>	limiting features	1	limiting features	1
147A:	 	 		 	
Gay, very stony	35	  Very limited	i	  Very limited	i
	ĺ	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Ponding	1.00	Ponding	1.00
	 	Slow water   movement	0.92	Organic matter content	1.00
				Seepage	0.50
148B: Shoepac	   70	  Very limited		  Very limited	
ыоерас	, , o	Depth to	1.00	_	1.00
	İ	saturated zone	j	saturated zone	İ
		Slow water	1.00	Seepage	0.92
		movement		Slope	0.08
Ensley	   20	  Very limited		  Very limited	
indicy	20	Depth to	1.00	Depth to	1.00
	İ	saturated zone	į	saturated zone	į
		Ponding	1.00	Ponding	1.00
		Slow water	0.50	Organic matter	1.00
	 	movement		content Seepage	0.50
	ĺ		i		İ
L55A:					
Zeba, very stony	55	Very limited   Depth to	1.00	Very limited   Depth to hard	1.00
	 	saturated zone	1	bedrock	1
	<u> </u>	Depth to bedrock	1.00	Depth to	1.00
	ĺ	Slow water	0.92	saturated zone	İ
		movement		Seepage	0.68
Jacobsville, very	 	 		 	
stony	30	  Very limited		  Very limited	
-	İ	Depth to	1.00	Depth to hard	1.00
		saturated zone		bedrock	!
	 	Depth to bedrock		Depth to	1.00
	 	Ponding   Slow water	1.00	saturated zone Ponding	1.00
		movement		Organic matter	1.00
	İ	İ	İ	content	į
				Seepage	0.50
L57B:	 	 		 	
Reade	45	  Very limited		  Very limited	
	İ	Depth to	1.00	Depth to hard	1.00
		saturated zone		bedrock	
	 	Depth to bedrock	1.00  0.50	Depth to	1.00
	 	Slow water   movement	0.50	saturated zone Seepage	0.50
			i		
Nahma	40	Very limited		  Very limited	
		Depth to	1.00	Depth to hard	1.00
	 	saturated zone Depth to bedrock	1 00	bedrock Depth to	1.00
	 	Depth to bedrock   Ponding	1.00	saturated zone	1.00
	İ	Slow water	0.50	Ponding	1.00
		movement		Organic matter	1.00
				content	
		1	1	Seepage	0.50

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption field	ds	Sewage lagoons	
	unit   		Value	   Rating class and   limiting features	Value
	 	 	<u> </u>		<u> </u>
158C:	ĺ		ĺ		ĺ
Munising, dissected,					
stony	50	Very limited		Very limited	
		Depth to cemented	1.00	_	1.00
	 	pan .		pan Depth to	
	 	Depth to saturated zone	1.00	saturated zone	1.00
	! 		 	!	0.92
	<u> </u>		İ	-	0.08
	İ		İ		İ
Abbaye, dissected,					
stony	35	Very limited		Very limited	
		Depth to	1.00	-	1.00
		saturated zone		bedrock	
	 	Depth to bedrock	0.92	Depth to saturated zone	1.00
	 	movement	0.92 		  0.92
	! 		 	-	0.50
	<u> </u>		İ		
160B:	ĺ		ĺ		ĺ
Paquin	55	Very limited		Very limited	
		Depth to cemented	1.00	_	1.00
		pan		pan	
	 	Depth to saturated zone	1.00		1.00
	 		1.00	saturated zone	1.00 
	 	layer			0.08
	j	_	į	_	İ
Finch	45	Very limited		Very limited	
		Depth to cemented	1.00	_	1.00
	 	pan ban		pan	  1 00
	 	Depth to saturated zone	1.00		1.00  1.00
	 	!	1.00	-	<b>1.</b> 00
	ĺ	layer	İ		İ
161B: Yellowdog, stony	   50	  Verv limited	l I	  Very limited	 
refronted to the first terms of the first terms of the first terms of the first terms of the first terms of the first terms of the first terms of the first terms of the first terms of the first terms of	30	Filtering	1.00	_	1.00
	İ	capacity	İ	bedrock	İ
	ĺ	Seepage, bottom	1.00	Seepage	1.00
		layer		Large stones	1.00
		Depth to bedrock	!	Slope	0.08
		Large stones	0.50		
Buckroe, stony	   40	  Very limited	l I	  Very limited	 
Duckiec, beary	10	Depth to bedrock		_	1.00
	<u> </u>	Seepage, bottom	1.00	bedrock	
	İ	layer	İ	Seepage	1.00
			ļ	Slope	0.08
ICED:	 		 		
165B: Chocolay, very stony	   55	  Very limited	l I	  Very limited	l I
oncorny, very scony	55	Depth to	1.00	_	  1.00
		saturated zone		bedrock	
	İ	Depth to bedrock	1.00	!	1.00
		Large stones	0.95	saturated zone	
		Slow water	0.50		1.00
		movement			0.50
	1			Slope	0.08

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption field	ds	Sewage lagoons   		
	unit   	'	Value	   Rating class and   limiting features	Value	
165B: Waiska, very stony	   30 	Filtering	    1.00		    1.00	
	   	capacity Seepage, bottom layer	  1.00 	Slope   	0.08   	
166:		l	 	l		
Skandia	   85	  Very limited	 	  Very limited		
Samura	03   	Depth to saturated zone	  1.00 	_	1.00	
		Depth to bedrock	!		1.00	
	 	Subsidence Seepage, bottom	1.00  1.00	bedrock   Organic matter	1.00	
		layer		content		
	İ	Ponding	1.00	Depth to	1.00	
				saturated zone		
	 	 	 	Seepage	1.00	
167:		 	 	 		
Skandia, stony	55	Very limited	İ	Very limited	į	
		Depth to	1.00		1.00	
	 	saturated zone Depth to bedrock	  1 00	bedrock Depth to soft	1.00	
		Subsidence	1.00	bedrock		
	İ	Seepage, bottom	1.00	Organic matter	1.00	
		layer		content		
	 	Ponding	1.00	Depth to saturated zone	1.00	
				Seepage	1.00	
	ĺ		ĺ		İ	
Jacobsville, stony	35	Very limited   Depth to	  1.00	Very limited   Depth to hard	  1.00	
	 	saturated zone	1.00	bedrock		
	İ	Depth to bedrock	1.00	Depth to	1.00	
		Ponding	1.00	saturated zone		
	 	Slow water   movement	0.50	Ponding Organic matter	1.00	
	 		 	content	1.00	
	İ	İ	į	Seepage	0.50	
170B:						
Chocolay, very stony	   90	  Verv limited	 	  Very limited	 	
2			1.00	<u>-</u>	1.00	
		saturated zone		bedrock		
	 	Depth to bedrock Large stones	1.00  0.95	Depth to saturated zone	1.00	
	 	Slow water	0.50		1.00	
	İ	movement	į	Seepage	0.50	
				Slope	0.08	
171B:	 	 	 	 	 	
Paavola, very stony	90	  Very limited		  Very limited	i	
		Depth to cemented	1.00	_	1.00	
	 	pan Donth to	1 00	pan	1 00	
	 	Depth to saturated zone	1.00 	Seepage Depth to	1.00  1.00	
				saturated zone		
				-	0.08	
	[	l	[	Large stones	0.01	

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption field	ds	Sewage lagoons   	
	unit   	· ————————————————————————————————————	Value	   Rating class and   limiting features	Value
172D: Buckroe, very bouldery	       70			      Very limited	        1.00
	   	_	1.00	bedrock Seepage	  1.00  1.00
Rock outcrop	   15 	  Not rated 	   	  Not rated 	   
172F: Buckroe, very bouldery	       70 	      Very limited   Depth to bedrock   Slope			        1.00
		Seepage, bottom   layer	1.00	Slope	1.00
Rock outcrop	   15 	  Not rated 	   	  Not rated 	   
176B: Croswell	     50	    Very limited	   	    Very limited	   
	           	Depth to saturated zone Filtering capacity	 	Seepage Depth to saturated zone	1.00  1.00      0.08
Kinross	40             	Very limited    Depth to     saturated zone     Filtering     capacity     Seepage, bottom     layer     Ponding	  1.00    1.00    1.00 	Depth to   saturated zone   Ponding	  1.00  1.00    1.00  1.00
181E: Frohling, dissected,	   	   	   		i I
stony		Very limited   Depth to cemented   pan   Slope		Very limited   Depth to cemented   pan   Slope   Seepage	  1.00    1.00  0.68
Tokiahok, dissected, stony		  Very limited   Depth to cemented   pan   Filtering   capacity   Slope	    1.00    1.00 		    1.00    1.00  1.00

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of	absorption fiel	absorption fields		
	map  unit	:		 	
	unii c   	Rating class and   limiting features	Value	Rating class and limiting features	Valu
			İ		i –
185B: McMaster	   90 	  Very limited   Depth to	1.00	  Very limited   Seepage	    1.00
	   	saturated zone Filtering capacity	1.00	Depth to   saturated zone 	1.00 
		Seepage, bottom   layer	1.00		İ
L86B:		 		 	
Chatham, stony	85   	Very limited   Seepage, bottom   layer	1.00	Very limited   Seepage   Slope	  1.00  0.08
		Slow water   movement	0.50	B10pc	
186D: Chatham, stony	     85	    Verv limited	   	    Very limited	   
J. J	   	Seepage, bottom   layer	1.00	Seepage   Slope	1.00
į	   	Slow water   movement	0.50	-   	į Į
	 	Slope	0.37		ļ ļ
87B:   Reade  85	   85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to hard   bedrock	    1.00
	   	Depth to bedrock Slow water movement	1.00	Depth to saturated zone Seepage	1.00
188B:	   				
Eben, stony	85	  Very limited   Seepage, bottom	1.00	  Very limited   Seepage	1.00
	   	layer   Large stones	0.68	Large stones   Slope	1.00
188D: Eben, stony	     90	    Very limited	   	    Very limited	
	 	Seepage, bottom	1.00	Seepage   Slope	1.00
	   	Large stones   Slope	0.68	Large stones   	1.00
188E: Eben, stony	     90	    Very limited	   	    Very limited	İ
-	   	Slope   Seepage, bottom	1.00	Slope   Seepage	1.00
		layer Large stones	0.68	Large stones	1.00
191B: Ruse	     50	    Very limited	   	    Very limited	1
	, 33   	Depth to bedrock Depth to	1.00	_	1.00
	   	saturated zone Seepage, bottom	1.00	Depth to saturated zone	1.00
	 	layer Ponding	  1.00	Seepage   Ponding	1.00  1.00

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct.   of  map	· -	ds	Sewage lagoons   	
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
191B: Ensign	   40       	Very limited Depth to bedrock Depth to saturated zone	    1.00  1.00 	Very limited Depth to hard bedrock Depth to saturated zone Seepage	    1.00    1.00    0.50
197B: Shoepac	     50	    Very limited	:	    Very limited	   
	     	Depth to   saturated zone   Slow water   movement	1.00    1.00	Depth to saturated zone Seepage	1.00    0.92
Trenary	   40   	  Somewhat limited   Slow water   movement	    0.99 	  Somewhat limited   Seepage   Slope	  0.32  0.32
198B: Shoepac	   60     	  Very limited   Depth to   saturated zone   Slow water   movement	  1.00    1.00	   Very limited   Depth to   saturated zone   Seepage	    1.00    0.92
Reade	   30       	Very limited Depth to saturated zone Depth to bedrock Slow water movement	  1.00    1.00  0.50	Very limited  Depth to hard  bedrock  Depth to  saturated zone  Seepage	  1.00    1.00    0.50
200A: Charlevoix	   55     	  Very limited   Depth to   saturated zone   Slow water   movement	    1.00    1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.18
Ensley	   30           	Very limited   Depth to   saturated zone   Ponding   Slow water   movement	  1.00    1.00  0.50	Very limited   Depth to   saturated zone   Ponding   Organic matter   content   Seepage	  1.00    1.00  1.00    0.50
202B: Sauxhead, very stony	   85           	Very limited   Depth to bedrock   Depth to   saturated zone   Seepage, bottom   layer	  1.00  1.00    1.00	Very limited Depth to hard bedrock Depth to soft bedrock Seepage Depth to saturated zone Slope	   1.00   1.00   1.00   1.00   0.08

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption field	ds	Sewage lagoons	
	unit   	'		Rating class and   limiting features	Value
206B: Traunik	     90       	capacity	      1.00    1.00	  Very limited   Seepage   Slope 	    1.00  0.32 
206D: Traunik	   90       	   Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	  1.00    1.00    0.16	  Very limited   Seepage   Slope 	    1.00  1.00   
211B: Munising	   55         	  Very limited   Depth to cemented   pan   Depth to   saturated zone		pan	    1.00    1.00    0.08
Abbaye	   35         	   Very limited   Depth to   saturated zone   Depth to bedrock   Slow water   movement	1.00	bedrock Depth to	  1.00    1.00    0.50  0.08
214B: Kalkaska	     60     	capacity	    1.00    1.00	  Very limited   Seepage   Slope 	    1.00  0.08 
Blue Lake	   30   	  Very limited   Seepage, bottom   layer	    1.00 	  Very limited   Seepage   Slope	    1.00  0.08
214D: Kalkaska	   55       	Very limited	    1.00    1.00    0.37	   Very limited   Seepage   Slope 	    1.00  1.00   
Blue Lake	   35     	   Very limited   Seepage, bottom   layer   Slope	  1.00    0.37	   Very limited   Seepage   Slope	    1.00  1.00

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	-	ds	Sewage lagoons   	
	unit 	Rating class and   limiting features	Value	   Rating class and   limiting features	Value
			İ		i
214E: Kalkaska	   55       	  Very limited   Filtering   capacity   Slope   Seepage, bottom   layer	  1.00    1.00  1.00	  Very limited   Slope   Seepage 	  1.00  1.00   
Blue Lake	   35     	  Very limited   Slope   Seepage, bottom   layer	  1.00  1.00 	  Very limited   Slope   Seepage 	  1.00  1.00
221B:				 	
Jeske	40     	Very limited   Depth to bedrock   Depth to   saturated zone	'		  1.00    1.00
	   	Seepage, bottom   layer	1.00	bedrock Seepage Depth to	  1.00  1.00
				saturated zone	-
Au Train	   30     	  Very limited   Depth to bedrock   Depth to   saturated zone   Seepage, bottom	  1.00  1.00   	  Very limited   Depth to hard   bedrock   Depth to soft   bedrock	  1.00    1.00
	     	layer		Seepage   Depth to   saturated zone   Slope	1.00  1.00      0.32
Gongeau	   20 	  Very limited   Depth to bedrock   Depth to	  1.00  1.00	bedrock	    1.00 
	   	saturated zone Seepage, bottom layer	1.00	Depth to soft   bedrock   Seepage	1.00    1.00
	   	Ponding   	1.00   	Depth to   saturated zone   Ponding	1.00    1.00
225B: Cusino	     95 	    Very limited   Filtering	      1.00	    Very limited   Seepage	      1.00
	     	capacity Seepage, bottom	1.00	Slope	0.08
225D: Cusino	   95 	  Very limited   Filtering   capacity	    1.00 	  Very limited   Seepage   Slope	  1.00  1.00
	   	Seepage, bottom   layer   Slope	1.00    0.37	 	   

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit	'			
		Rating class and	Value	Rating class and	Value
	<u>                                     </u>	limiting features		limiting features	
226B:	İ		İ	İ	İ
Kalkaska	50	Very limited		Very limited	!
		Filtering	1.00		1.00
		capacity Seepage, bottom	1.00	Slope	0.08
		layer			ļ
Cusino	45	  Very limited		  Very limited	
	į	Filtering	1.00		1.00
		capacity		Slope	0.08
	 	Seepage, bottom	1.00	 	 
226D:	 	i I	İ	i I	İ
Kalkaska	50	  Very limited	į	  Very limited	į
		Filtering	1.00	Seepage	1.00
		capacity		Slope	1.00
		Seepage, bottom	1.00	 	
		Slope	0.37		
Cusino		 		 	
Cusino	45 	Very limited   Filtering	1.00	Very limited   Seepage	1.00
		capacity		Slope	1.00
	İ	Seepage, bottom	1.00		i
	ĺ	layer	İ	İ	İ
		Slope	0.37	 	
226E:					
Kalkaska	50	Very limited		Very limited	
		Filtering	1.00	Slope	1.00
		capacity		Seepage	1.00
	 	Slope   Seepage, bottom	1.00	 	1
		layer			
Cusino	40	  Very limited		  Very limited	 
	İ	Filtering	1.00	Slope	1.00
		capacity		Seepage	1.00
		Slope	1.00		
		Seepage, bottom   layer	1.00		!
226F:	 	 		 	 
Kalkaska	50	  Very limited	į	  Very limited	į
		Filtering	1.00	Slope	1.00
		capacity		Seepage	1.00
		Slope	1.00	 	1
		Seepage, bottom   layer	1.00		-
Cusino	   35	  Very limited		  Very limited	
		Filtering	1.00	Slope	1.00
		capacity		Seepage	1.00
		Slope	1.00		
		Seepage, bottom	1.00	 	
	 	layer	İ	 	į Į

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and   limiting features	Value	   Rating class and   limiting features	Value
227A: Halfaday	   90         	Very limited Depth to saturated zone Filtering capacity Seepage, bottom	    1.00    1.00 	   Very limited   Seepage   Depth to   saturated zone	    1.00  1.00 
232B: Shelldrake	     90     	layer  Very limited  Filtering  capacity  Seepage, bottom  layer	      1.00    1.00	    Very limited   Seepage   Slope 	    1.00  0.32
233B: Abbaye, very stony	   50         	   Very limited   Depth to   saturated zone   Depth to bedrock   Slow water   movement	    1.00    1.00  0.92	  Very limited   Depth to hard   bedrock   Depth to   saturated zone   Seepage   Slope	  1.00    1.00    0.50  0.08
Zeba, very stony	   35         	Very limited   Depth to   saturated zone   Depth to bedrock   Slow water   movement	  1.00    1.00  0.92	   Very limited   Depth to hard   bedrock   Depth to   saturated zone   Seepage	  1.00    1.00    0.68
234A: Levasseur, very stony	     55       	Very limited   Depth to bedrock   Depth to   saturated zone   Seepage, bottom   layer   Large stones	   1.00  1.00   1.00   1.00   0.85	   Very limited   Depth to hard   bedrock   Seepage   Depth to   saturated zone   Large stones	  1.00    1.00  1.00    0.86
Burt, very stony	   35           	Very limited   Depth to bedrock   Depth to   saturated zone   Seepage, bottom   layer   Ponding		Very limited   Depth to hard   bedrock   Seepage   Depth to   saturated zone   Ponding	  1.00    1.00  1.00 
235B: Sauxhead, very stony	   60           	   Very limited   Depth to bedrock   Depth to   saturated zone   Seepage, bottom   layer	  1.00  1.00    1.00   		  1.00    1.00    1.00  1.00

Table 13a.--Sanitary Facilities--Continued

and soil name	Pct. of map	Septic tank   absorption fiel 	ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value
235B:	 				
Burt, very stony	30	Very limited	İ	Very limited	İ
		Depth to bedrock		Depth to hard	1.00
		Depth to	1.00	bedrock	
	 	saturated zone Seepage, bottom	1.00	Seepage Depth to	1.00
	 	layer		saturated zone	1
		Ponding	1.00	Ponding	1.00
236B:	 	]		]	
Waiska, extremely		 		 	
bouldery	85	  Very limited	İ	  Very limited	İ
	İ	Filtering	1.00	Seepage	1.00
		capacity		Slope	0.08
	 	Seepage, bottom	1.00	 	
	į		į		
236D:				1	
Waiska, extremely bouldery	   05	  Very limited		  Very limited	
bouldery	65	Filtering	1.00	Seepage	1.00
i		capacity		Slope	1.00
	İ	Seepage, bottom	1.00	· -	i
		layer			
	 	Slope	0.16	 	
237B:					
Chatham	65	Very limited		Very limited	
		Seepage, bottom	1.00	Seepage	1.00
		layer		Slope	0.08
		Slow water   movement	0.50	 	
Davies	   20	 		 	
Davies	20	Very limited   Depth to	1.00	Very limited   Seepage	1.00
		saturated zone		Depth to	1.00
	İ	Filtering	1.00	saturated zone	į
		capacity		Ponding	1.00
		Seepage, bottom	1.00	Organic matter	1.00
		layer		content	
	 	Ponding	1.00	Large stones	0.56
		Large stones 			
239B:					
Longrie	50	Very limited	:	Very limited   Depth to hard	1.00
	 	Depth to bedrock Slow water	0.50		1
	İ	movement		Seepage	0.50
	į		į	Slope	0.08
Shingleton	   40	  Very limited		  Very limited	
	0	_	:	_	1 00
		Depth to bearock	1 1 . 0 0	Depth to hard	1.00
	 	Depth to bedrock Seepage, bottom	1.00		

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	absorption fiel	ds	Sewage lagoons   	
		Rating class and		Rating class and   limiting features	Value
240F: Trout Bay	     30	    Very limited	   	    Very limited	
•		Depth to saturated zone	1.00	_	1.00
	 	Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage, bottom   layer	1.00	Organic matter content	1.00
	   	   	   	Depth to saturated zone Slope	1.00    1.00
Gongeau	25	    Very limited	j I	  Very limited	į į
	 	Depth to bedrock Depth to	1.00	Depth to hard bedrock	1.00
	 	saturated zone Seepage, bottom	1.00	Depth to soft bedrock	1.00
		layer 		Seepage Depth to	1.00
	   	 		saturated zone Organic matter content	1.00
Shingleton	20	  Very limited		  Very limited	
	     	Depth to bedrock   Slope   Seepage, bottom   layer	1.00  1.00  1.00	Depth to hard   bedrock   Slope 	1.00    1.00
Rock outcrop	   15 	  Not rated 	   	  Not rated 	   
241: Cathro	     55	    Very limited	<u> </u>	    Very limited	į
out		Depth to   saturated zone	1.00	_	1.00
		Subsidence	1.00	Seepage	1.00
	   	Ponding   Slow water   movement	1.00  0.50	Ponding   Organic matter   content	1.00
Gay	     35	  Very limited	 	  Very limited	<u> </u>
	 	Depth to saturated zone	1.00 	Depth to saturated zone	1.00 
		Ponding Slow water	1.00	Ponding Organic matter	1.00
	   	movement 		content Seepage	0.50
242B: Kalkaska, severely	!   	   		   	
burned	95	  Very limited   Filtering	1.00	  Very limited   Seepage	1.00
	     	capacity Seepage, bottom	1.00	Slope   	0.08

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	ds	Sewage lagoons   	1
	unit	!			
		Rating class and   limiting features	Value	Rating class and limiting features	Value
242D:	 	l		 	
Kalkaska, severely				 	i
burned	95	Very limited	i	  Very limited	i
	İ	Filtering	1.00	Seepage	1.00
		capacity		Slope	1.00
		Seepage, bottom	1.00		
	 	layer   Slope	0.37		
242F:					
Kalkaska, severely burned	90	  Very limited		  Very limited	1
Dullicu		Filtering	1.00	Slope	1.00
		capacity		Seepage	1.00
	İ	Slope	1.00		İ
		Seepage, bottom	1.00		
	 	layer 			 
243:			į		į
Markey	95	Very limited	:	Very limited	
		Depth to saturated zone	1.00	Seepage Depth to	1.00
	 	Filtering	1.00	saturated zone	1
		capacity		Ponding	1.00
	į	Seepage, bottom	1.00	Organic matter	1.00
		layer		content	
		Subsidence	1.00		
		Ponding 	1.00		
245B:				  Very limited	
Trout Bay	40	Very limited   Depth to	1.00	<u>-</u>	1.00
		saturated zone		bedrock	
	į	Depth to bedrock	1.00	Depth to soft	1.00
		Seepage, bottom	1.00	bedrock	
		layer		Organic matter	1.00
		Ponding	1.00	content	
	 	 		Depth to saturated zone	1.00
		! 		Seepage	1.00
	İ	İ	İ		İ
Lupton	30	: -		Very limited	
		Depth to	1.00		1.00
	 	saturated zone Subsidence	1.00	content Depth to	1.00
		Seepage, bottom	1.00	saturated zone	
	İ	layer	i	Seepage	1.00
		Ponding	1.00	Ponding	1.00
Gongeau	20	  Very limited		  Very limited	
-	j	Depth to bedrock			1.00
		Depth to	1.00	bedrock	
		saturated zone		Depth to soft	1.00
		Seepage, bottom	1.00	bedrock	
	 	layer   Ponding	1.00	Seepage Depth to	1.00
		Foliating		saturated zone	
	1	t contract the contract to the contract to the contract to the contract to the contract to the contract to the contract to the			

Table 13a.--Sanitary Facilities--Continued

and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit   	   Rating class and   limiting features		   Rating class and   limiting features	Value
246B: Garlic	   90     	  Very limited   Filtering   capacity   Seepage, bottom   layer	    1.00    1.00	     Seepage   Slope 	    1.00  0.08
246D: Garlic	     90         	  Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	    1.00    1.00    0.37	  Very limited   Seepage   Slope 	    1.00  1.00 
246E: Garlic	   90       	Very limited   Filtering   capacity   Slope   Seepage, bottom   layer	  1.00    1.00  1.00	   Very limited   Slope   Seepage 	  1.00  1.00 
248B: Escanaba	     50 	  Somewhat limited   Slow water   movement	      0.92	  Very limited   Seepage   Slope	    1.00  0.08
Greylock	   40   	  Somewhat limited   Slow water   movement	  0.92 	  Somewhat limited   Seepage   Slope	  0.50  0.08
248D: Escanaba	   50   	  Somewhat limited   Slow water   movement   Slope	0.92	  Very limited   Seepage   Slope	  1.00  1.00
Greylock	   40     	  Somewhat limited   Slow water   movement   Slope	  0.92    0.37	  Very limited   Slope   Seepage 	  1.00  0.50
248E: Escanaba	50   50 	  Very limited   Slope   Slow water   movement	  1.00  0.92	  Very limited   Slope   Seepage	  1.00  1.00
Greylock	   40   	  Very limited   Slope   Slow water   movement	  1.00  0.92	  Very limited   Slope   Seepage	  1.00  0.50

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
249B: Sauxhead	   55       	   Very limited   Depth to bedrock   Depth to   saturated zone   Seepage, bottom   layer	    1.00  1.00    1.00	Very limited Depth to hard bedrock Depth to soft bedrock Seepage Depth to saturated zone	    1.00    1.00    1.00
Skandia	   35               	Very limited   Depth to   saturated zone   Depth to bedrock   Subsidence   Seepage, bottom   layer   Ponding	   1.00   1.00   1.00   1.00   1.00   1.00	Very limited   Depth to hard   bedrock   Depth to soft   bedrock   Organic matter   content   Depth to   saturated zone   Seepage	  1.00    1.00    1.00    1.00
250B: Chocolay, extremely stony	     55         	Very limited   Depth to   saturated zone   Depth to bedrock   Large stones   Slow water   movement	    1.00    1.00  0.95  0.50	Very limited Depth to hard bedrock Depth to saturated zone Large stones Seepage Slope	    1.00    1.00    1.00  0.50  0.08
Jacobsville, extremely stony	   30             		   1.00   1.00   1.00   0.50 	Very limited   Depth to hard   bedrock   Depth to   saturated zone   Ponding   Organic matter   content   Seepage	   1.00   1.00   1.00   1.00   0.50
251B: Greylock	90   	  Somewhat limited   Slow water   movement	    0.92 	  Somewhat limited   Seepage   Slope	    0.50  0.08
251D: Greylock	   85       	  Somewhat limited   Slow water   movement   Slope	    0.92    0.37	  Very limited   Slope   Seepage	    1.00  0.50

Table 13a.--Sanitary Facilities--Continued

Unit	and soil name	Pct. of map	Septic tank absorption field	ds	Sewage lagoons	
	:					
Finch	<u> </u>			Value	_	Value
Finch	λ· [		 	 	 	 
Depth to   1.00   Seepage   Depth to   Saturated zone   Seepage, bottom   1.00   Saturated zone   Layer   Seepage, bottom   1.00   Seepage   Depth to   Seepage   Seepage   Seepage   Seepage   Seepage   Seepage   Seepage   Seepage   Seepage   Seepage   Seepage   Seep		50	: -	    1.00	-	    1.00
Seepage, bottom   1.00   saturated zone   layer			! <del>-</del>	  1.00	· -	  1.00
Depth to   1.00   Seepage   Depth to   Saturated zone   Depth to   Filtering   1.00   Saturated zone   Ponding   Seepage, bottom   1.00   Organic matter   Layer   Content   Ponding   1.00   Organic matter   Content   Ponding   1.00   Organic matter   Content   Ponding   1.00   Seepage   Seepage   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope			Seepage, bottom	  1.00 	-	1.00   
Saturated zone   Filtering   1.00   Saturated zone   Filtering   1.00   Saturated zone   Ponding   Seepage, bottom   1.00   Organic matter   Layer   Content   Ponding   1.00   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Slope   Seepage   Slope   Slope   Seepage   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope	nross	40		 	_	   !
Filtering   1.00   saturated zone   capacity   Ponding   Seepage, bottom   1.00   Organic matter   content   Ponding   1.00			:	1.00		1.00
capacity   Ponding   Seepage, bottom   1.00   Organic matter   layer   content   Ponding   1.00			!	  1.00	-	1.00
layer   content   Ponding   1.00			:		!	1.00
Ponding   1.00	j		Seepage, bottom	1.00	Organic matter	1.00
Kalkaska, dissected 55 Very limited   Very limited   Filtering   1.00   Seepage   Capacity   Slope   Seepage, bottom   1.00   Layer   Slope   Seepage, bottom   1.00   Layer   Slope   Seepage, bottom   1.00   Seepage   Layer   Slope   Slope   Slope   Seepage, bottom   1.00   Seepage   Layer   Slope   Seepage   Layer   Slope   Seepage   Seepage, bottom   1.00   Slope   Capacity   Seepage   Seepage, bottom   1.00   Layer   Slope   Layer   Slope   Loo   Slope   Layer   Slope   Layer   Slope   Layer   Slope   Loo   Seepage   Seepage, bottom   1.00   Slope   Layer   Slope   Layer   Slope   Layer   Slope   Loo   Seepage   Seepage   Slope   Loo   Seepage   Slope   Loo   Seepage   Slope   Loo   Seepage   Slope   Loo   Seepage   Slope   Capacity   Seepage   Slope   Slope   Seepage   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope				  1.00	content	 
Kalkaska, dissected 55 Very limited   Very limited   Filtering   1.00   Seepage   Capacity   Slope   Seepage, bottom   1.00   Layer   Slope   Seepage, bottom   1.00   Layer   Slope   Seepage, bottom   1.00   Seepage   Layer   Slope   Slope   Slope   Seepage, bottom   1.00   Seepage   Layer   Slope   Seepage   Layer   Slope   Seepage   Seepage, bottom   1.00   Slope   Capacity   Seepage   Seepage, bottom   1.00   Layer   Slope   Layer   Slope   Loo   Slope   Layer   Slope   Layer   Slope   Layer   Slope   Loo   Seepage   Seepage, bottom   1.00   Slope   Layer   Slope   Layer   Slope   Layer   Slope   Loo   Seepage   Seepage   Slope   Loo   Seepage   Slope   Loo   Seepage   Slope   Loo   Seepage   Slope   Loo   Seepage   Slope   Capacity   Seepage   Slope   Slope   Seepage   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope	g.					
Filtering   1.00   Seepage   capacity   Slope   Seepage, bottom   1.00   layer   Seepage, bottom   1.00   layer   Seepage   Seepage, bottom   1.00   Seepage   layer   Slope   Seepage   Slope   1.00   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Seepage   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope	1	55	  Verv limited	 	  Verv limited	 
Seepage, bottom   1.00   layer				1.00	_	1.00
Blue Lake, dissected 35   Very limited   Very limited     Seepage, bottom   1.00   Seepage     Layer   Slope	j		capacity	ĺ	Slope	1.00
Seepage, bottom   1.00   Seepage   layer   Slope				1.00 	 	 
Seepage, bottom   1.00   Seepage   layer   Slope	ue Lake. dissected	35	  Verv limited	 	  Verv limited	 
254E:  Kalkaska, dissected   55   Very limited			-	1.00	_	1.00
Kalkaska, dissected   55   Very limited   Very limited   Filtering   1.00   Slope   capacity   Seepage   Seepage   Seepage, bottom   1.00   layer   Slope   1.00   Slope   Seepage   Slope   1.00   Slope   Seepage   Seepage   Slope   1.00   Slope   Seepage   Slope   1.00   Slope   Seepage   Slope   1.00   Slope   Seepage   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slope   Slo	į			 		1.00
Filtering   1.00   Slope   capacity   Seepage   Seepage   Seepage   Seepage   Seepage   Seepage   Seepage   Slope   1.00	E:					
capacity   Seepage   Seepage   Seepage   Seepage, bottom   1.00	lkaska, dissected	55		ļ	_	
Seepage, bottom   1.00			:	1.00	-	1.00  1.00
layer				1.00	Beepage	<b>1.</b> 00
Blue Lake, dissected 35   Very limited   Very limited     Seepage, bottom   1.00   Slope     layer   Seepage     Slope   1.00     254F:   Kalkaska, dissected   55   Very limited   Very limited     Filtering   1.00   Slope     capacity   Seepage     Slope   1.00     Seepage, bottom   1.00	į			į		İ
Seepage, bottom   1.00   Slope   layer   Seepage   Slope     1.00	ļ		Slope	1.00	 	 
layer	ue Lake, dissected	35	  Very limited		  Very limited	 
Slope   1.00	į			1.00	_	1.00
	ļ		-		Seepage	1.00
Kalkaska, dissected       55       Very limited       Very limited               1.00               Slope			Slope 	1.00 	 	 
Filtering   1.00   Slope	F:					İ
capacity   Seepage   Slope   1.00     Seepage   Seepage   1.00	lkaska, dissected	55			_	
Slope   1.00				1.00		1.00
Seepage, bottom   1.00			!	1.00	seepage	<b>1.</b> 00
į į į į į į			Seepage, bottom	!	 	   
· · · · · · · · · · · · · · · · · · ·	į		_	į		İ
Blue Lake, dissected 35   Very limited     Very limited	ue Lake, dissected	35	-		_	
			· -	!	_	1.00  1.00
seepage, bottom   1.00   seepage					 	

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	Septic tank absorption field	is	Sewage lagoons   	
	unit   	!	Value	   Rating class and   limiting features	Value
255D:	 	 	 	 	 
Wallace	95	Very limited		Very limited	İ
		Depth to cemented	1.00	-	1.00
	 	pan Seepage, bottom	  1.00	pan   Seepage	  1.00
	 	layer	<b>1.</b> 00		1.00
	į	Slope	0.01		
256B:	 		 		 
Whitewash	95	Very limited	İ	Very limited	İ
		!	1.00	Seepage	1.00
	 	capacity		 	 
		Seepage, bottom   layer	1.00 	 	
266A:	 		 		 
Spot	50	Very limited	İ	Very limited	İ
		Depth to cemented	1.00	Depth to cemented	1.00
		pan		pan	
	 	Depth to saturated zone	1.00		1.00  1.00
		Seepage, bottom	1.00	saturated zone	
	İ	layer	İ	Ponding	1.00
	 	Ponding 	1.00	Organic matter	1.00
Finch	40	Very limited		Very limited	
		Depth to cemented	1.00	Depth to cemented	1.00
	 	pan Depth to	  1.00	pan   Seepage	  1.00
	 	saturated zone	1.00		1.00
	İ	:	1.00	saturated zone	İ
	 	layer	 	 	 
267A:					
Finch	85	Very limited		Very limited	
	 	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to	1.00	_	1.00
	İ	saturated zone	j		1.00
	 	Seepage, bottom	1.00 	saturated zone	 
2600	 	1			İ
268C: Munising, calcareous		[ 	 	[ 	 
substratum,					
dissected	40			Very limited	
	 	Depth to cemented	1.00	Depth to cemented	1.00
	 	pan Depth to	  1.00	pan   Depth to	1.00
		saturated zone		saturated zone	
	İ			Slope	0.92
	1			Seepage	0.68

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map		ds	Sewage lagoons   	
	unit   	'	Value	   Rating class and   limiting features	Value
	<u> </u>		<u> </u>		<u>                                     </u>
268C: Frohling, calcareous substratum,	 	 	   	 	   
dissected	30   	Very limited   Depth to cemented   pan	!	Very limited   Depth to cemented   pan	  1.00 
	   	Slow water   movement	0.50	-	0.92
Cookson, dissected	   20   	  Very limited   Depth to bedrock   Slow water	!	  Very limited   Depth to hard   bedrock	    1.00
	   	movement		!	0.92
269E: Frohling, calcareous substratum,	     	   	     	   	     
dissected	50   	  Very limited   Depth to cemented   pan	!	  Very limited   Depth to cemented   pan	  1.00
	 	Slope   Slow water   movement	1.00  0.50 		1.00  0.50
Garlic, dissected	   20 	Filtering	    1.00	-	    1.00
	   	capacity Seepage, bottom layer Slope	  1.00    1.00	Seepage    -	1.00   
Cookson, dissected	     20		   	    Very limited	   
	 	Depth to bedrock	1.00  1.00	Depth to hard bedrock	1.00 
		Slow water   movement	0.50	Slope   Seepage	1.00
272C: Munising, calcareous substratum,	     	 	     	 	     
dissected	40   	  Very limited   Depth to cemented   pan		  Very limited   Depth to cemented   pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
	   	   	   	-	0.92  0.68 
Yalmer, calcareous substratum,	 	 	 	 	 
dissected	30   	Very limited   Depth to cemented   pan		Very limited   Depth to cemented   pan	  1.00 
	   	Depth to   saturated zone   Filtering	1.00    1.00	Seepage   Depth to   saturated zone	1.00  1.00 
	 	capacity	   	Slope	1.00

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption field	ds	Sewage lagoons	
	unit   	'	Value	   Rating class and   limiting features	Value
272C: Frohling, calcareous substratum,	į	 	     		     
dissected	20     	Depth to cemented pan Slow water		pan   Slope	1.00
275B:	   	movement   	   	Seepage   	0.50   
Munising, calcareous substratum		  Very limited   Depth to cemented   pan   Depth to   saturated zone		   Very limited   Depth to cemented   pan   Depth to   saturated zone   Seepage   Slope	  1.00  1.00  1.00    0.68  0.08
Cookson	   40     	Very limited   Depth to bedrock   Slow water   movement		Very limited Depth to hard bedrock Seepage Slope	  1.00    0.50  0.08
281E: Mongo, dissected	     95     	  Very limited   Slow water   movement   Slope	    1.00    1.00	  Very limited   Slope 	      1.00   
282B: Furlong	   50     	  Very limited   Seepage, bottom   layer   Depth to bedrock	1.00	bedrock	  1.00    1.00  0.32
Shingleton	   40     	   Very limited   Depth to bedrock   Seepage, bottom   layer		  Very limited   Depth to hard   bedrock   Slope	    1.00    0.08
282D: Furlong	   50     	  Very limited   Seepage, bottom   layer   Depth to bedrock   Slope	1.00	bedrock	    1.00    1.00  1.00
Shingleton	   40     	Very limited   Depth to bedrock   Seepage, bottom   layer   Slope	!	   Depth to hard   bedrock   Slope	    1.00    1.00

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct.	Septic tank absorption field	ds	Sewage lagoons	
and boll name	map				
	unit	İ			
		Rating class and	Value	Rating class and	Valu
	<u> </u>	limiting features		limiting features	<u> </u>
284B:	 	 	 		 
Steuben	40	  Very limited	İ	Very limited	İ
	İ	Depth to cemented	1.00	Depth to cemented	1.00
		pan		pan	
	 	Seepage, bottom	1.00	Seepage   Slope	1.00  0.08
	 	layer		blope	<b>0.00</b> 
Blue Lake	30	Very limited	İ	Very limited	İ
			1.00		1.00
	 	layer		Slope	0.08
Kalkaska	   20	  Very limited	 	  Very limited	 
		Filtering	1.00	_	1.00
	İ	capacity	İ	Slope	0.08
		Seepage, bottom	1.00		
	 	layer			
284D:	 	 	 		 
Steuben	40	  Very limited	İ	Very limited	İ
		Depth to cemented	1.00	Depth to cemented	1.00
		pan		pan	
	 	Seepage, bottom	1.00		1.00  1.00
	 	layer   Slope	0.37	Slope 	<b>1.</b> 00
	ĺ		İ		İ
Blue Lake	25	Very limited	ļ	Very limited	
		Seepage, bottom	1.00		1.00
	 	layer   Slope	  0.37	Slope	1.00 
					İ
Kalkaska	25	Very limited		Very limited	
		Filtering	1.00	Seepage	1.00
	 	capacity Seepage, bottom	  1.00	Slope	1.00
	 	layer	1.00		
	İ	Slope	0.37		İ
284E: Steuben	   40	  Very limited	 	  Very limited	 
		Depth to cemented	1.00	Depth to cemented	1.00
	İ	pan	İ	pan	İ
		Slope	1.00	Slope	1.00
	 	Seepage, bottom	1.00	Seepage	1.00
	 	rayer	 		 
Blue Lake	30	  Very limited	į	Very limited	İ
		Slope	1.00	-	1.00
	 	Seepage, bottom	1.00	Seepage	1.00
	 	layer 			
Kalkaska	20	  Very limited	İ	Very limited	į
		Filtering	1.00	Slope	1.00
		capacity		Seepage	1.00
	 	Slope	1.00		
	 	Seepage, bottom	1.00	 	 
	I	Tayer	I	I	1

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons   	
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
					T
285B: Halfaday	   50   	  Very limited   Depth to   saturated zone   Filtering	  1.00    1.00	  Very limited   Seepage   Depth to   saturated zone	  1.00  1.00
		capacity   Seepage, bottom   layer	1.00	   	     
Kinross	40	Very limited    Depth to   saturated zone   Filtering   capacity   Seepage, bottom   layer   Ponding	  1.00    1.00    1.00	Very limited   Seepage   Depth to   saturated zone   Ponding   Organic matter   content	  1.00  1.00    1.00  1.00
286B: Greylock	   50 	  Somewhat limited   Slow water   movement	0.92	  Somewhat limited   Seepage   Slope	  0.50  0.08
Cookson	   40   	  Very limited   Depth to bedrock   Slow water   movement		  Very limited   Depth to hard   bedrock   Seepage   Slope	  1.00    0.50  0.08
287B:	 	 		 	
McMaster	55	Very limited    Depth to   saturated zone   Filtering   capacity   Seepage, bottom   layer	  1.00    1.00    1.00	   Very limited   Seepage   Depth to   saturated zone	  1.00  1.00     
Davies	35	Very limited    Depth to   saturated zone     Filtering   capacity     Seepage, bottom   layer     Ponding   Large stones	  1.00    1.00    1.00    1.00	Depth to	  1.00  1.00    1.00  1.00    0.56
290A: Namur, very stony	50 	  Very limited   Depth to bedrock		  Very limited   Depth to hard   bedrock	    1.00
Ruse, very stony	40   	  Very limited   Depth to bedrock   Depth to   saturated zone		. –	  1.00    1.00
		Seepage, bottom   layer   Ponding	1.00		  1.00  1.00

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
 	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
292B: Mashek, sandy substratum	     90         	   Very limited   Slow water   movement   Depth to   saturated zone   Seepage, bottom   layer	      1.00    1.00    1.00	Very limited Depth to saturated zone Seepage	      1.00    0.50
296D: Islandlake	   55         	   Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	  1.00    1.00    0.16	  Very limited   Seepage   Slope 	  1.00  1.00   
McMillan	   35         	   Filtering   capacity   Seepage, bottom   layer   Slope	  1.00    1.00    0.16	   Very limited   Seepage   Slope 	  1.00  1.00 
296E: Islandlake	   55       	   Very limited   Filtering   capacity   Slope   Seepage, bottom   layer	    1.00    1.00  1.00	  Very limited   Slope   Seepage 	    1.00  1.00 
McMillan	   35         	   Very limited   Filtering   capacity   Slope   Seepage, bottom   layer	  1.00    1.00  1.00	  Very limited   Slope   Seepage 	  1.00  1.00   
297B: Rubicon, severely burned	     95       	     Very limited   Filtering   capacity   Seepage, bottom   layer	      1.00    1.00	    Very limited   Seepage   Slope 	      1.00  0.08
297D: Rubicon, severely burned	     95         	   Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	      1.00    1.00    0.26	    Very limited   Seepage   Slope 	      1.00  1.00   

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	: -	ds	Sewage lagoons   	
	unit   	!	Value	Rating class and   limiting features	Value
298B: Wurtsmith	     55 	    Very limited   Depth to	      1.00	    Very limited   Seepage	      1.00
	       	saturated zone Filtering capacity Seepage, bottom layer	  1.00    1.00	Depth to   saturated zone   Slope 	1.00    0.08   
Deford	   35       		  1.00    1.00    1.00	!	  1.00  1.00    1.00  1.00
	   	layer   Ponding 	  1.00 	content	   
299F: Shelldrake	   99         	  Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	    1.00    1.00 	  Very limited   Seepage   Slope 	    1.00  1.00   
300F: Shelldrake	   61         	  Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	      1.00    1.00	  Very limited   Seepage   Slope 	    1.00  1.00   
Dune land	   38 	  Not rated	   	  Not rated	   
301F: Cookson, dissected	     55     	  Very limited   Slope   Depth to bedrock   Slow water   movement	1.00	bedrock	    1.00    1.00  0.50
Nykanen, dissected	   35   	Depth to bedrock Depth to	'	bedrock	    1.00
	         	saturated zone   Slope       	  1.00       	Depth to soft   bedrock   Slope   Depth to   saturated zone   Seepage	1.00    1.00  1.00    0.50
302B: Dillingham	   <b>45</b>   	Depth to cemented pan	    1.00    1.00	  Very limited   Depth to cemented   pan   Seepage   Slope	  1.00    1.00  0.08

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	<u>-</u>	ds	Sewage lagoons	
	unit	Rating class and	Value		Value
	<u> </u>	limiting features	 	limiting features	<u> </u>
302B: Kalkaska	   40       	capacity	    1.00    1.00		    1.00  0.08
302D: Dillingham	   52     			pan Seepage	1.00
	 	layer   Slope	  0.37	Slope 	1.00
Kalkaska	   45         	Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	    1.00    1.00    0.37		    1.00  1.00   
302E:					
Dillingham	50         	Very limited   Depth to cemented   pan   Slope   Seepage, bottom   layer		-	  1.00    1.00  1.00
Kalkaska	   40         	  Very limited   Filtering   capacity   Slope   Seepage, bottom   layer	  1.00    1.00  1.00	-	  1.00  1.00     
302F:					İ
Dillingham	50     	Very limited   Depth to cemented   pan   Slope	  1.00    1.00	pan	  1.00    1.00
	 	Seepage, bottom   layer	1.00	-	1.00
Kalkaska	   40       	  Very limited   Filtering   capacity   Slope	    1.00    1.00  1.00	-	    1.00  1.00   
303B:	 	 	 	 	 
303B: Kiva	   55     	   Very limited   Filtering   capacity   Seepage, bottom   layer	  -  1.00  -  1.00		  1.00  0.08

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of	Septic tank   absorption fiel	ds	Sewage lagoons		
	map					
	unit   	   Rating class and   limiting features	'	Rating class and limiting features	Value	
303B: Trenary	   30 	  Somewhat limited   Slow water   movement	    0.99 	Somewhat limited Seepage Slope	0.32	
303D:		  -				
Kiva	   55   	  Very limited   Filtering   capacity	1.00	Very limited Seepage Slope	  1.00  1.00	
	 	Seepage, bottom	1.00			
		Slope	0.16			
Trenary	   30   	  Somewhat limited   Slow water   movement   Slope	  0.99    0.16	Very limited Slope Seepage	  1.00  0.32	
	į	_	į		į	
303E: Kiva	   55       	   Very limited   Filtering   capacity   Slope   Seepage, bottom   layer	  1.00    1.00  1.00	Very limited Slope Seepage	  1.00  1.00   	
Trenary	   30     	   Very limited   Slope   Slow water   movement	    1.00  0.99 	Very limited Slope Seepage	  1.00  0.32	
305B: Wurtsmith	   55         	Very limited   Depth to   saturated zone   Filtering   capacity   Seepage, bottom   layer	  1.00    1.00    1.00	Very limited Seepage Depth to saturated zone Slope	  1.00  1.00    0.32	
Meehan	   40         	Very limited Depth to saturated zone Filtering capacity Seepage, bottom layer	  1.00    1.00    1.00	Very limited Seepage Depth to saturated zone	  1.00  1.00   	
306C: Deerton, dissected	   35       	  Very limited   Filtering   capacity   Seepage, bottom   layer	      1.00    1.00	bedrock	    1.00    1.00	
	 	Depth to bedrock	1.00	Seepage   Slope	1.00	

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption field	ds	Sewage lagoons	
	unit   		Value	Rating class and   limiting features	Value
306C: Tokiahok, dissected	   30         	  Very limited   Depth to cemented   pan   Filtering   capacity   Slope		pan	    1.00    1.00  1.00
Jeske, dissected	   20           	Depth to bedrock Depth to saturated zone	  1.00  1.00    1.00    -	Very limited Depth to hard bedrock Depth to soft bedrock Seepage Depth to saturated zone Slope	  1.00  1.00  -  1.00  1.00  -
307B: Rubicon, very deep water table	     95       	Filtering capacity	      1.00    1.00	    Very limited   Seepage   Slope	      1.00  0.08
307D: Rubicon, very deep water table	     95         	   Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	    1.00    1.00    0.37	  Very limited   Seepage   Slope 	      1.00  1.00 
308B: Rubicon	   55       	   Very limited   Filtering   capacity   Seepage, bottom   layer	    1.00    1.00	  Very limited   Seepage   Slope 	    1.00  0.08
Sultz	   40   	  Very limited   Slow water   movement	    1.00 	  Very limited   Seepage   Slope	    1.00  0.08
308D: Rubicon	   55         	   Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	  1.00    1.00    0.37	  Very limited   Seepage   Slope 	    1.00  1.00 
Sultz	   40     	   Very limited   Slow water   movement   Slope	    1.00    0.37	  Very limited   Seepage   Slope 	    1.00  1.00 

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	absorption fiel	.ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value
309B: Rubicon, deep water table	       95	      Very limited   Filtering	      1.00	      Very limited   Seepage	        1.00
	       	capacity Seepage, bottom layer Depth to saturated zone	  1.00    0.94	Depth to   saturated zone   Slope 	0.40    0.08   
309D: Rubicon, deep water	   	 	   	 	   
table	95             	Very limited   Filtering   capacity   Seepage, bottom   layer   Depth to   saturated zone   Slope	  1.00    1.00    0.94    0.37	Slope	  1.00  1.00  0.40 
310B: Kalkaska, burned	   90       	  Very limited   Filtering   capacity   Seepage, bottom   layer	1.00	  Very limited   Seepage   Slope 	  1.00  0.08
310D: Kalkaska, burned	   95           	  Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	    1.00    1.00    0.37	  Very limited   Seepage   Slope 	    1.00  1.00   
310E: Kalkaska, burned	   95         	  Very limited   Filtering   capacity   Slope   Seepage, bottom   layer	  1.00    1.00  1.00	  Very limited   Slope   Seepage 	  1.00  1.00   
311B: Kalkaska, very deep water table, burned	     95       	  Very limited   Filtering   capacity   Seepage, bottom   layer	  1.00    1.00	  Very limited   Seepage   Slope	    1.00  0.08   
311D: Kalkaska, very deep water table, burned	     95       	  Very limited   Filtering   capacity   Seepage, bottom   layer   Slope	    1.00    1.00    0.37	  Very limited   Seepage   Slope 	      1.00  1.00 

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	.ds	Sewage lagoons   	
	unit	   Rating class and   limiting features	Value	   Rating class and   limiting features	Valu
	<u>                                       </u>				1
312B: Islandlake, burned	95   	  Very limited   Filtering   capacity	1.00	  Very limited   Seepage   Slope	  1.00  0.08
		Seepage, bottom	1.00		
3105				1	
312D: Islandlake, burned	   95   	  Very limited   Filtering   capacity	  1.00	  Very limited   Seepage   Slope	  1.00  1.00
	   	Seepage, bottom   layer   Slope	1.00    0.16	   	   
	İ				i
313B: Kalkaska, deep water table, burned		    Very limited		    Very limited	
	     	Filtering   capacity   Seepage, bottom   layer	1.00    1.00	Seepage    -	1.00
	 	layer		 	
314B: Blue Lake, very deep water table, burned	:	      Very limited	 	      Very limited	   
		Seepage, bottom	1.00	_	1.00
		layer		Slope	0.08
315B: Blue Lake, deep	   	 	   	 	   
water table, burned	95	-	1.00	Very limited	1.00
	 	Seepage, bottom   layer		Seepage Depth to	0.40
		Depth to saturated zone	0.94	saturated zone	0.08
316B:	 	 		 	
Blue Lake, burned	95	  Very limited		  Very limited	İ
	 	Seepage, bottom   layer	1.00	Seepage   Slope	1.00  0.08
21.60	İ	   	į	 	į
316D: Blue Lake, burned	   95			  Very limited	
	   	Seepage, bottom   layer   Slope	1.00    0.37	Seepage   Slope	1.00
317B: Kalkaska, very deep	 	 		 	
water table	95	Very limited   Filtering	  1.00	Very limited   Seepage	  1.00
		capacity Seepage, bottom	1.00		ļ ļ
		layer			

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of	Septic tank absorption fiel	lds	Sewage lagoons	
	map  unit	 		 	
	unit   	Rating class and limiting features		Rating class and limiting features	Value
317D:					
Kalkaska, very deep	 	 		 	
water table	95	  Very limited	i	  Very limited	i
	İ	Filtering	1.00	Seepage	1.00
		capacity		Slope	1.00
		Seepage, bottom	1.00		
	 	layer   Slope	0.37	 	
318B:	 	 		 	
Islandlake, very				 	
deep water table	95	Very limited		Very limited	
		Filtering	1.00	Seepage	1.00
		capacity		Slope	0.08
	 	Seepage, bottom	1.00 	 	
318D:	 			 	
Islandlake, very			i		i
deep water table	95	: -		Very limited	
		Filtering	1.00	Seepage	1.00
	 	capacity Seepage, bottom	1.00	Slope 	1.00
		layer			i
	 	Slope	0.16	 	į
319B:		 			
Islandlake	95	Very limited		Very limited	
	 	Filtering   capacity	1.00	Seepage   Slope	1.00
		Seepage, bottom	1.00		
	 	layer	į	 	į
319D:		 			
Islandlake	95	Very limited		Very limited	
	 	Filtering   capacity	1.00	Seepage   Slope	1.00
		Seepage, bottom	1.00		
	İ	layer	į	İ	İ
	 	Slope	0.16	 	
319E:					į
Islandlake	95	Very limited		Very limited	
	 	Filtering   capacity	1.00	Slope   Seepage	1.00
		Slope	1.00		
	İ	Seepage, bottom	1.00	 	į
		layer 			
319F: Islandlake		  Vorume		  Very limited	
TETAHUTAKE	 	Very limited   Filtering	1.00	Very limited   Slope	1.00
		capacity		Seepage	1.00
	İ	Slope	1.00		İ
		Seepage, bottom	1.00		!
		layer	1		

Table 13a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	ds	Sewage lagoons   	•
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value
320B:	 			 	
Kalkaska, deep water					
table	95	Very limited		Very limited	
		Filtering	1.00	Seepage	1.00
		capacity		Depth to	0.40
	 	Seepage, bottom	1.00	saturated zone	
		Depth to	0.94		i
		saturated zone			į
321B:				 	
Kalkaska	50	Very limited	į	Very limited	į
		Filtering	1.00	Seepage	1.00
		capacity		Slope	0.08
		Seepage, bottom   layer	1.00	 	
Deerton	45	  Very limited		  Very limited	
	 	Filtering   capacity	1.00	Depth to hard bedrock	1.00
	 	Seepage, bottom   layer	1.00	Depth to soft	1.00
		Depth to bedrock	1.00	Seepage	1.00
				Slope	0.08
321D:	 			 	
Kalkaska	50	Very limited		Very limited	
		Filtering	1.00	Seepage	1.00
		capacity		Slope	1.00
	 	Seepage, bottom   layer	1.00	 	
	į	Slope	0.37	  -	į
Deerton	45	  Very limited		  Very limited	
		Filtering	1.00	Depth to hard	1.00
		capacity		bedrock	
		Seepage, bottom	1.00	Depth to soft	1.00
		layer	11 00	bedrock	11 00
		Depth to bedrock	0.37	Seepage   Slope	1.00
		Lope		Lope	

### Table 13b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary landfill		Daily cover fo	or
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10:		 		 		 	
Beaches	100	Not rated	į	Not rated	į	Not rated	į
11C:		 		 			
Deer Park	90	· -		Very limited	:	Very limited	
	   	Seepage, bottom   layer   Too sandy	1.00	Seepage   	1.00   	Too sandy Seepage	1.00  1.00
	į	-	į		į		į
11E: Deer Park	95	  Verv limited		  Very limited		  Very limited	
2001 14111		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	j	layer	į	Slope	1.00	Seepage	1.00
		Too sandy	1.00			Slope	1.00
	 	Slope	1.00	l I		]	
11F:							
Deer Park	98	! <del>-</del>		Very limited		Very limited	
	l I	Slope	1.00	Slope	1.00	Slope	1.00
	 	Seepage, bottom	1	Seepage 	1	Too sandy Seepage	1.00
	İ	Too sandy	1.00		İ		
12B:	 	l		l		 	
Rubicon	90	  Very limited		  Very limited		  Very limited	
	İ	Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer				Seepage	1.00
		Too sandy	1.00	 			
12D:	į		į		į		į
Rubicon	95	! <del>-</del>	1.00	Very limited	1.00	Very limited   Too sandy	1.00
	 	Seepage, bottom	1	Seepage   Slope	0.37	Seepage	1.00
		Too sandy	1.00			Slope	0.37
	İ	Slope	0.37		İ		1
12E:		 		 			
Rubicon	95	Very limited	į	Very limited	į	Very limited	İ
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	 		Seepage 	
100							
13B: Kalkaska	94	  Verv limited		  Very limited	1	  Very limited	
nainabha		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	İ	layer	į		į	Seepage	1.00
		Too sandy	1.00	 		 	
13D:		 					
Kalkaska	96			Very limited		Very limited	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	 	layer	1 00	Slope	0.37	Seepage	1.00
	 	Too sandy   Slope	1.00	 		Slope 	0.37
		1 32020	, ,	1	1	I	1

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover for landfill	r
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
13E: Kalkaska	  100       	   Very limited   Slope   Seepage, bottom   layer   Too sandy	    1.00  1.00    1.00		      1.00  1.00	  Very limited   Slope   Too sandy   Seepage	    1.00  1.00  1.00
15A: Croswell	   92         	   Very limited   Depth to   saturated zone   Seepage, bottom   layer   Too sandy	  1.00    1.00    1.00	saturated zone	    1.00    1.00 	  Very limited   Too sandy   Seepage   Depth to   saturated zone	  1.00  1.00  0.86 
16A: Paquin	   90           	Very limited   Depth to   saturated zone   Seepage, bottom   layer   Too sandy   Depth to thin   cemented pan	    1.00    1.00    1.00	saturated zone		Very limited Depth to cemented pan Too sandy Seepage Depth to saturated zone	    1.00    1.00  1.00  0.86
17A: Au Gres	   92         	   Very limited   Depth to   saturated zone   Seepage, bottom   layer   Too sandy	    1.00    1.00    1.00	saturated zone	      1.00    1.00	   Very limited   Depth to   saturated zone   Too sandy   Seepage	    1.00    1.00  1.00
18: Kinross	   92           	  Very limited   Depth to   saturated zone   Seepage, bottom   layer   Too sandy   Ponding	    1.00    1.00    1.00	saturated zone Seepage	      1.00    1.00  1.00	  Very limited   Depth to   saturated zone   Too sandy   Seepage   Ponding	    1.00    1.00  1.00
19: Deford	   92           	Very limited   Depth to   saturated zone   Seepage, bottom   layer   Too sandy   Ponding	  1.00    1.00    1.00  1.00	saturated zone	    1.00    1.00  1.00	  Very limited   Depth to   saturated zone   Too sandy   Seepage   Ponding	  1.00    1.00  1.00  1.00
21A: Ingalls	90	  Very limited   Depth to   saturated zone   Too acid	    1.00    1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    1.00	  Very limited   Depth to   saturated zone	    1.00   

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	landfill	У	Area sanitary		Daily cover for	r
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
24B:		l		 	 	 	
Munising	90	Depth to saturated zone	  1.00 	pan		pan	į
	   	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00 	Depth to saturated zone	1.00
25B:		 	 	 	 	 	
Munising	   55   	  Very limited   Depth to   saturated zone	  1.00 	  Very limited   Depth to cemented   pan		  Very limited   Depth to cemented   pan	  1.00 
	 	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00   	Depth to saturated zone	1.00
Yalmer	30	Very limited   Depth to	1.00	Very limited   Depth to cemented	  1.00	Very limited   Depth to cemented	1.00
	   	saturated zone Too sandy Depth to thin	  1.00  0.50	pan   Depth to   saturated zone	  1.00 	pan Depth to saturated zone	  1.00 
	 	cemented pan	ļ !		1.00	Too sandy Seepage	1.00
25D:	 	 		 	 	 	 
Munising	   55 	  Very limited   Depth to   saturated zone	1.00	-		  Very limited   Depth to cemented	1.00
	   	Depth to thick cemented pan	1.00	pan   Depth to   saturated zone	  1.00 	pan   Depth to   saturated zone	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
Yalmer	   30 	  Very limited   Depth to	    1.00	  Very limited   Depth to cemented	    1.00	  Very limited   Depth to cemented	    1.00
	   	saturated zone Too sandy Depth to thin	  1.00  0.50	pan Depth to saturated zone	  1.00 	pan Depth to saturated zone	  1.00
		cemented pan			1.00	Too sandy	1.00
	   	Slope   	0.37   	Slope   	0.37   	Seepage   Slope 	1.00
31D: Trenary	     85 	  Somewhat limited   Slope	    0.16	  Somewhat limited   Slope	    0.16	  Somewhat limited   Slope	    0.16
33: Ensley	90	    Very limited   Depth to	      1.00	    Very limited   Depth to	      1.00	    Very limited   Depth to	      1.00
	   	saturated zone Ponding	1.00	saturated zone Ponding	    1.00	saturated zone Ponding	1.00
35B: Munising, calcareous		 	   	  - 	   	 	   
substratum	40   	Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to cemented   pan	  1.00 	Very limited   Depth to cemented   pan	  1.00 
	 	Depth to thick cemented pan	1.00	_	1.00	: -	1.00

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo:	r
	<u>.</u> 	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
35B: Yalmer, calcareous substratum	       30 	      Very limited   Depth to   saturated zone	        1.00	      Very limited   Depth to cemented   pan		      Very limited   Depth to cemented   pan	        1.00
	     	Depth to thick cemented pan Too sandy	1.00    0.50	Depth to   saturated zone   Seepage	1.00    1.00 	saturated zone Seepage	1.00    1.00  0.50
Frohling, calcareous substratum	1	  Very limited   Depth to thick   cemented pan	      1.00 	  Very limited   Depth to cemented   pan 		  Very limited   Depth to cemented   pan	      1.00 
37B: Grand Sable	   90   	  Very limited   Seepage, bottom   layer   Too sandy	  1.00    0.50	  Very limited   Seepage   	    1.00   	  Very limited   Seepage   Too sandy	  1.00  0.50
37E: Grand Sable	   98       	  Very limited   Slope   Seepage, bottom   layer   Too sandy	   1.00   1.00   0.50	  Very limited   Slope   Seepage 	    1.00  1.00		    1.00  1.00  0.50
38B: Rhody	   60         	Depth to saturated zone	    1.00  1.00  1.00  1.00  1.00	  Very limited   Depth to   saturated zone   Seepage   Depth to bedrock   Ponding	1.00    1.00	Seepage   Depth to bedrock	    1.00    1.00  1.00  1.00
Towes	   30         	Very limited   Depth to   saturated zone   Depth to bedrock   Seepage, bottom   layer	  1.00    1.00  1.00		    1.00    1.00  1.00	   Very limited   Depth to bedrock   Depth to   saturated zone	  1.00  1.00     
40B: Waiska, very stony	   90     	  Very limited   Seepage, bottom   layer   Too sandy	    1.00    1.00	  Very limited   Seepage   	    1.00   	Seepage	    1.00  1.00  1.00
42: Davies	   90         	Very limited   Depth to   saturated zone   Seepage, bottom   layer   Too sandy   Ponding   Large stones	  1.00    1.00    1.00  1.00  0.21	  Very limited   Depth to   saturated zone   Seepage   Ponding	  1.00    1.00  1.00	saturated zone Too sandy	  1.00    1.00  1.00  1.00  0.25

Table 13b.--Sanitary Facilities--Continued

and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo	or
	unii c   	Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
4.6							Ţ
46: Jacobsville, very	 	 	l I	 		 	
stony	   90	  Verv limited	İ	  Very limited	i	  Very limited	1
2001.7		Depth to	1.00	: -	1.00		1.00
		saturated zone		saturated zone		saturated zone	
	İ	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	ĺ	Ponding	1.00	Ponding	1.00	Ponding	1.00
47C:	 	l	l I	l I	l i	l I	
Deerton	   55	  Very limited		  Very limited	İ	  Very limited	
	İ	Depth to bedrock	1	Seepage	1.00	Too sandy	1.00
	İ	Seepage, bottom	1.00	Depth to bedrock	1.00	Seepage	1.00
		layer		Slope	0.01	Depth to bedrock	1.00
		Too sandy	1.00			Slope	0.01
		Slope	0.01				
Au Train	   30	  Very limited	1	  Very limited		  Very limited	
na rram	30	Depth to	1.00	Depth to	1.00	Depth to bedrock	1.00
	! 	saturated zone	i	saturated zone	1	Depth to	1.00
	İ	Depth to bedrock	1.00	Depth to bedrock	1.00	saturated zone	i
		Seepage, bottom	1.00			Too sandy	1.00
		layer		[	ļ	Seepage	0.09
	 	Too sandy	1.00	 		 	
47E:							
Deerton	55	Very limited		Very limited		Very limited	
		Depth to bedrock	:	Seepage	1.00	Too sandy	1.00
		Seepage, bottom	1.00	Depth to bedrock	1	Seepage	1.00
	 	layer	11 00	Slope	1.00	Depth to bedrock	
	 	Too sandy Slope	1.00	 		Slope	1.00
				 	i		i
Au Train	30	Very limited	į	Very limited	į	Very limited	İ
		Depth to	1.00	Depth to	1.00	Depth to bedrock	1.00
		saturated zone		saturated zone		Depth to	1.00
	 	Depth to bedrock	!	Depth to bedrock		saturated zone	
	 	Seepage, bottom	1.00	Slope	0.63	Too sandy   Slope	1.00
	 	Too sandy	1.00	 	i	Seepage	0.09
		Slope	0.63				
4.0							
48: Burt	   9.0	  Very limited		  Very limited		  Very limited	1
Burc	J0 	Depth to	1.00	Depth to	1.00	Depth to bedrock	1.00
		saturated zone		saturated zone		Depth to	1.00
	İ	Depth to bedrock	1.00	Depth to bedrock	1.00	saturated zone	İ
		Seepage, bottom	1.00	Ponding	1.00	Too sandy	1.00
		layer				Seepage	1.00
					1		1.00
	 	Too sandy	1.00		!	Ponding	1
	     	-	1.00	 	   	Ponding   	
49B:	     	Too sandy	!	    -  -	     	Ponding     	
49B: Cookson	         90	Too sandy Ponding	!	        Very limited	     	Ponding          Very limited	

Table 13b.--Sanitary Facilities--Continued

and soil name	Pct. of map	landfill	У	Area sanitary		Daily cover fo	or
	unit   	Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
	İ	ĺ	İ	<u> </u>	İ		İ
51:		 		 			
Nahma	50	Very limited   Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
	 	saturated zone	1	saturated zone	1	saturated zone	1
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Ruse	   40	  Very limited		  Very limited		  Very limited	
	-0	Depth to	1.00	Depth to	1.00	Depth to bedrock	1.00
	İ	saturated zone		saturated zone	1	Depth to	1.00
	i	Depth to bedrock	1.00	Depth to bedrock	1.00	saturated zone	i
	İ	Seepage, bottom	1.00	Ponding	1.00	Ponding	1.00
		layer				Seepage	0.21
		Ponding	1.00			 	
52B:				 			
Summerville	85	Very limited		Very limited		Very limited	
	 	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
57:							i
Carbondale	30	Very limited		Very limited		Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Organic matter	1.00	Seepage	1.00	Organic matter	1.00
	 	content Seepage, bottom	1.00	Ponding	1.00	content Ponding	1.00
		layer	1	 		Seepage	0.21
		Ponding	1.00				
Lupton	   30	  Verv limited		  Very limited		  Very limited	
2		Depth to	1.00	Depth to	1.00	Depth to	1.00
	i	saturated zone	İ	saturated zone	İ	saturated zone	i
	İ	Organic matter	1.00	Seepage	1.00	Organic matter	1.00
		content		Ponding	1.00	content	
		Seepage, bottom	1.00			Ponding	1.00
	 	layer   Ponding	1.00	 		Seepage 	0.16
		į			į		į
Tawas	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to	1.00	Depth to saturated zone	1.00
	 	Seepage, bottom	1.00	saturated zone Seepage	1.00	Too sandy	1.00
		layer	1	Ponding	1.00	Seepage	1.00
		Too sandy	1.00	101141119		Ponding	1.00
		Ponding	1.00				
58:	 	 		 	 	 	
Dawson	30	  Very limited	İ	  Very limited	İ	  Very limited	i
	į	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		Ponding	1.00	Seepage	1.00
					1		1.
	į	Too sandy Ponding	1.00		į	Ponding	1.00

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of	Trench sanitar	У	Area sanitary		Daily cover fo	r
	unit						
		Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
58: Greenwood	   30 	  Very limited   Depth to	    1.00	  Very limited   Depth to	    1.00	  Very limited   Depth to	    1.00
	   	saturated zone Organic matter content	  1.00	saturated zone   Seepage   Ponding	  1.00  1.00	saturated zone   Organic matter   content	1.00
	 	Seepage, bottom   layer	1.00			Ponding   Seepage	1.00
	 	Ponding	1.00			 	
Loxley	30	  Very limited		  Very limited		  Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	 	Organic matter	1.00	Seepage   Ponding	1.00  1.00	Organic matter content	1.00
	 	Seepage, bottom	1.00	 		Ponding   Seepage	1.00  0.15
	:   	Ponding	1.00	i I	į į	 	į į
59:		Tom: limited		 	į	    -	į
Chippeny	55	Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone Depth to bedrock	1 00	saturated zone Depth to bedrock	1 00	saturated zone Organic matter	1.00
		Organic matter	1.00	Seepage	1.00	content	
		content Ponding	  1.00	Ponding	1.00	Depth to bedrock Ponding	1.00
	į		į	į	į	Seepage	0.16
Nahma	30	  Very limited		  Very limited		  Very limited	!
	 	Depth to saturated zone	1.00 	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	 	Depth to bedrock Ponding	1.00  1.00	Depth to bedrock Ponding	1.00	Depth to bedrock Ponding	1.00
60							
60: Histosols	   50	  Very limited	 	  Very limited		  Very limited	
		Depth to saturated zone	1.00	Ponding Depth to	1.00	Ponding   Depth to	1.00
	 	Ponding	1.00	saturated zone		saturated zone	
	 	Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
	 	!	1.00	 	<u> </u> 	Seepage	0.16
Aquents	   50	  Very limited	 	  Very limited		  Very limited	 
		Depth to saturated zone	1.00	Ponding   Depth to	1.00	Ponding Depth to	1.00
		Ponding	1.00	saturated zone		saturated zone	
61:		 		 		 	
Pits	100 	Not rated		Not rated		Not rated 	
62F: Udipsamments	   50	  Not rated	 	    Not rated		    Not rated	į I
Udorthents	į		į	  Not rated	į	    Not rated	į
ogot enemes							

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo landfill	r
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
64B: Kiva	     90   	: -	      1.00    1.00	    Very limited   Seepage   	      1.00	  Very limited   Too sandy   Seepage	    1.00  1.00
64D: Kiva	   90         	  Very limited   Seepage, bottom   layer   Too sandy   Slope	    1.00    1.00  0.16	  Very limited   Seepage   Slope 	    1.00  0.16 	  Very limited   Too sandy   Seepage   Slope 	    1.00  1.00  0.16
65D:							
Jeske, bedrock terrace	   45           	Very limited   Depth to   saturated zone   Depth to bedrock   Seepage, bottom   layer   Too sandy	1.00	Very limited   Depth to   saturated zone   Seepage   Depth to bedrock	1.00    1.00	Depth to saturated zone	  1.00  1.00    1.00  1.00
Gongeau, bedrock			İ		i		i
terrace	25           	Very limited    Depth to   saturated zone     Depth to bedrock     Seepage, bottom     layer     Too sandy	  1.00    1.00  1.00    1.00	Very limited   Depth to   saturated zone   Depth to bedrock 	1.00	Very limited   Depth to bedrock   Depth to   saturated zone   Too sandy   Seepage	  1.00  1.00    1.00  1.00
Deerton, bedrock					i		i
terrace	20       	Very limited   Depth to bedrock   Seepage, bottom   layer   Too sandy   Slope	  1.00  1.00    1.00  0.84	Very limited   Seepage   Depth to bedrock   Slope	1.00		  1.00  1.00  1.00  0.84
65F:		 		 		 	
Jeske, bedrock terrace	   45           	   Very limited   Depth to   saturated zone   Depth to bedrock   Seepage, bottom   layer   Too sandy	    1.00    1.00  1.00    1.00	Very limited Depth to saturated zone Seepage Depth to bedrock	    1.00    1.00  1.00	Depth to	    1.00  1.00    1.00  1.00
Gongeau, bedrock terrace	   25           	Very limited Depth to saturated zone Depth to bedrock Seepage, bottom layer Too sandy	  1.00    1.00  1.00    1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	  1.00    1.00   	  Very limited   Depth to bedrock   Depth to   saturated zone   Too sandy   Seepage	  1.00  1.00    1.00  1.00

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	landfill	У	Area sanitary		Daily cover fo	or
	unit   	'	Value	   Rating class and   limiting features		   Rating class and   limiting features	Value
65F:				 		 	
Deerton, bedrock terrace	   20         	Depth to bedrock Seepage, bottom layer	1	  Very limited   Seepage   Depth to bedrock   Slope 	1.00	  Very limited   Too sandy   Seepage   Depth to bedrock   Slope 	  1.00  1.00  1.00  1.00
66D:	İ	j	į	j	į	j	İ
Ruse, bedrock terrace	   40   	-	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	1.00	  Very limited   Depth to bedrock   Depth to   saturated zone	  1.00  1.00
Ensign, bedrock			İ	 		 	
terrace	30	Very limited   Depth to   saturated zone   Depth to bedrock	  1.00    1.00	Very limited   Depth to   saturated zone   Depth to bedrock	1.00	Depth to	  1.00  1.00
Nykanen, bedrock							
terrace	20       	Very limited   Depth to   saturated zone   Depth to bedrock   Slope	1.00	Very limited   Depth to   saturated zone   Depth to bedrock   Slope	1.00	Very limited   Depth to bedrock   Depth to   saturated zone   Slope	  1.00  1.00    0.63
66F:	 	 	l I	 		 	
Ruse, bedrock terrace	   40   	-	1.00	saturated zone	1.00	  Very limited   Depth to bedrock   Depth to   saturated zone	  1.00  1.00
Ensign, bedrock	 	[		 		 	l I
terrace	30     	Very limited   Depth to   saturated zone   Depth to bedrock	1.00	Very limited   Depth to   saturated zone   Depth to bedrock	1.00	Very limited   Depth to bedrock   Depth to   saturated zone	  1.00  1.00
Nykanen, bedrock terrace	   20       	Depth to saturated zone	1.00	saturated zone Depth to bedrock	1.00	Depth to saturated zone	  1.00  1.00   
68: Pits, quarry	    100 	    Not rated 	     	    Not rated 		    Not rated 	   
69B: Escanaba	     85 	  Not limited	 	  Very limited   Seepage	1.00	  Not limited	 

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary		Daily cover fo	r
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
	ļ						
71A: Evart	   70 	  Very limited   Flooding	    1.00	  Very limited   Flooding	    1.00	  Very limited   Depth to	    1.00
	j I	Depth to saturated zone	1.00	Depth to saturated zone	1.00	saturated zone Too sandy	1.00
		Seepage, bottom	1.00 	Seepage   Ponding	1.00  1.00	Seepage   Ponding	1.00  1.00
		Too sandy Ponding	1.00	 	   		 
Sturgeon	20	  Very limited   Flooding	    1.00	  Very limited   Flooding	    1.00	  Very limited   Depth to	    1.00
	   	Depth to   saturated zone	1.00	Depth to   saturated zone	1.00	saturated zone Too sandy	1.00
	 	Seepage, bottom   layer	1.00	Seepage	1.00	Seepage	1.00
		Too sandy 	1.00 	 	 	 	 
72E: Deerton, dissected	40			  Very limited		  Very limited	
		Depth to bedrock Seepage, bottom	1.00  1.00	Seepage Depth to bedrock	1.00	Too sandy Seepage	1.00
	İ	layer		Slope	1.00	Depth to bedrock	
	j I	Too sandy	1.00	i I	j 	Slope	1.00
Tokiahok, dissected	30	: -	 	  Very limited	 	  Very limited	 
		Depth to thick cemented pan	1.00	Depth to cemented pan	į	Depth to cemented pan	į
		Slope Too sandy	1.00  0.50	Seepage   Slope	1.00  1.00	Seepage   Slope	1.00
	   	100 sandy   		Blope   	   	Too sandy 	0.50
Trout Bay, dissected	   15 	  Very limited   Depth to	1.00	  Very limited   Depth to	  1.00	  Very limited   Depth to	  1.00
	İ	saturated zone		saturated zone	ĺ	saturated zone	İ
		Depth to bedrock Organic matter	1.00	Depth to bedrock   Slope	1.00	Organic matter	1.00
		content Slope	1.00	 	 	Depth to bedrock Slope	1.00
		Seepage, bottom   layer	1.00		 	Seepage	0.16
72F:					 		
Deerton, dissected	40 	Very limited   Slope	1.00	Very limited   Slope	  1.00	Very limited   Slope	  1.00
	i	Depth to bedrock	1	Seepage	1.00	Too sandy	1.00
		Seepage, bottom   layer	1.00	Depth to bedrock	1.00	Seepage Depth to bedrock	1.00
Tokiahok, dissected	25	Too sandy    Very limited	1.00	    Very limited	   	    Very limited	   
TONTAHOR, GISSECTEG	45	Very limited   Slope	1.00	very limited   Depth to cemented	1.00	very limited   Depth to cemented	1.00
	İ	Depth to thick	1.00	pan	İ	pan	i
		cemented pan		Slope	1.00	Slope	1.00
		Too sandy	0.50	Seepage	1.00	Seepage	1.00  0.50
		 		 	 	Too sandy 	0. 

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover for landfill	r
	<u>i</u> <u>I</u>	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
72F:		 		 	 	 	 
Trout Bay, dissected	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
	 	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1
		Depth to bedrock	1	Depth to bedrock	1.00	Organic matter	1.00
	İ	Organic matter	1.00	İ	ĺ	content	ĺ
		content			!	Depth to bedrock	
	 	Seepage, bottom   layer	1.00 	 	 	Seepage 	0.16 
76C:		 		 	 	 	
Garlic, dissected	40			Very limited		Very limited	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer   Too sandy	1.00	 	 	Seepage 	1.00 
Blue Lake, dissected	30	  Very limited		  Very limited	 	  Somewhat limited	 
	İ	Seepage, bottom	1.00	Seepage	1.00	Seepage	0.57
		layer Too sandy	0.50	 	 	Too sandy	0.50
W11 4	20	j		 		 	į
Voelker, dissected	20	Very limited   Too sandy	1.00	Very limited   Depth to cemented	  1 00	Very limited   Depth to cemented	1 00
		Depth to thin	0.50	pan	1	pan pan	1.00
	į	cemented pan		: -	1.00	Too sandy	1.00
				 	 	Seepage 	1.00
76E: Garlic, dissected	40	 	İ	  Very limited	l I	  Very limited	İ
Gaille, dissected	10	Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	į	layer	j	Slope	1.00	Seepage	1.00
		Too sandy	1.00	[		Slope	1.00
	 	Slope 	1.00	 	 	 	
Blue Lake, dissected	30	  Very limited	İ	  Very limited	İ	  Very limited	İ
		Seepage, bottom	1.00	Seepage	1.00	Slope	1.00
		layer		Slope	1.00	Seepage	0.57
		Slope   Too sandy	1.00  0.50	 	 	Too sandy	0.50
Voelker, dissected	   20	  Very limited		  Very limited	 	  Very limited	 
,		Too sandy	1.00	Depth to cemented		Depth to cemented	1.00
		Slope	1.00	pan		pan	
		Depth to thin	0.50	Slope	1.00	Too sandy	1.00
		cemented pan		Seepage 	1.00 	Seepage   Slope	1.00  1.00
76F:		 		 	 	 	
Garlic, dissected	40	Very limited	1	  Very limited	İ	  Very limited	İ
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer   Too sandy	1.00	 	 	Seepage 	1.00 
Blue Lake, dissected	   30	  Very limited		  Very limited	 	  Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Seepage	0.57
		layer				Too sandy	0.50
		Too sandy	0.50				

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	landfill	У	Area sanitary		Daily cover for landfill	r
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
76F:		 		 	 	 	
Voelker, dissected	20	  Very limited   Slope   Too sandy	  1.00  1.00	  Very limited   Depth to cemented   pan	    1.00	  Very limited   Depth to cemented   pan	    1.00
	   	Depth to thin cemented pan	0.50	Slope	1.00	Slope	1.00
				 	 	Seepage	1.00
77B:							
Garlic	40	-	1.00	Very limited   Seepage	  1.00	· -	  1.00  1.00
		Too sandy	1.00			beepage	
Blue Lake	30	  Very limited   Seepage, bottom	    1.00	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	    0.57
	   	layer   Too sandy	0.50	Seepage   	<b>1.00</b>   		0.50
Voelker	   20 	  Very limited   Too sandy	    1.00	  Very limited   Depth to cemented			    1.00
	   	Depth to thin cemented pan	0.50	pan   Seepage 	  1.00 	· -	  1.00  1.00
					į		
77D: Garlic	40	  Very limited   Seepage, bottom	    1.00	  Very limited   Seepage	    1.00	  Very limited   Too sandy	    1.00
	   	layer   Too sandy	1.00	Slope	0.16	Seepage	1.00
		Slope	0.16	 	 	 	 
Blue Lake	30	  Very limited		  Very limited		  Somewhat limited	
	l I	Seepage, bottom	1.00	Seepage   Slope	1.00  0.16		0.57
		Too sandy	0.50	Slope	0.10	· -	0.16
	į	Slope	0.16	į	İ	_	į
Voelker	20	  Very limited		  Very limited	 	  Very limited	 
	 	Too sandy Depth to thin	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		cemented pan		Seepage	1.00	Too sandy	1.00
	<u> </u> 	Slope	0.16	Slope	0.16	Seepage   Slope	1.00
77E:				 	 		 
Garlic	40	_	:	Very limited	:	Very limited	į
	l I	Slope	1.00	Slope	1.00  1.00		1.00  1.00
		Seepage, bottom		Seepage 	1.00	Too sandy Seepage	1.00
		Too sandy	1.00	 	 	 	 
Blue Lake	30	_	:	  Very limited		  Very limited	
	 	Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Seepage Too sandy	0.57

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo landfill	r
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77E: Voelker	     20	    Very limited		 	   	    Very limited	
	     	Slope   Too sandy   Depth to thin   cemented pan	1.00  1.00  0.50		1.00    1.00  1.00	Depth to cemented pan Slope Too sandy	1.00    1.00  1.00
	<u> </u> 	- 	į Į		<u> </u> 	Seepage	1.00
88: Cathro	   55 	  Very limited   Depth to	1.00		    1.00	  Very limited   Depth to	1.00
	   	saturated zone Ponding	1.00		  1.00  1.00	saturated zone Ponding	1.00
Ensley	   35   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00
00		Ponding	1.00	Ponding	1.00	Ponding	1.00
93: Tawas	   70 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00
	     	Seepage, bottom   layer   Too sandy   Ponding	1.00    1.00  1.00		1.00  1.00 	Too sandy   Seepage   Ponding 	1.00  1.00  1.00
Deford	   20 	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00
	     	Seepage, bottom layer Too sandy Ponding	1.00    1.00  1.00	!	1.00  1.00 	Too sandy Seepage Ponding	1.00  1.00  1.00
95B:	   	Foliding   	   	   	   	   	   
Liminga	90	   Very limited   Seepage, bottom   layer	1.00	Very limited   Seepage 	  1.00 	Very limited   Too sandy   Seepage	  1.00  1.00
104C:	   	Too sandy   	1.00   	 	   	 	   
Fence, dissected	90     	Very limited Depth to saturated zone	1.00	   Very limited   Depth to   saturated zone 	  1.00 	   Very limited   Depth to   saturated zone	  1.00 
109D: Rousseau	   50 		1.00	  Very limited   Seepage   Slope	    1.00  0.37	  Very limited   Too sandy   Seepage	    1.00  1.00
		Too sandy	1.00	 	 	Slope	0.37

Table 13b.--Sanitary Facilities--Continued

	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo landfill	or
	   	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
109D:	 			 		 	
Dawson	45	Very limited	į	Very limited	į	Very limited	į
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone	1.00	saturated zone		saturated zone	1.00
		Seepage, bottom	1	Seepage Ponding	1.00	Too sandy Seepage	1.00
	İ	Too sandy	1.00			Ponding	1.00
	į	Ponding	1.00		į	- 	į
.09F:	 			 		 	
Rousseau	55	Very limited	į	Very limited	į	Very limited	į
		Seepage, bottom	1.00	Seepage	1.00	:	1.00
		layer		Slope	1.00	Seepage	1.00
	 	Too sandy Slope	1.00  1.00	 		Slope 	1.00
	į	į		į	į		į
Dawson	40	· -		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	İ	layer		Ponding	1.00	Seepage	1.00
		Too sandy	1.00			Ponding	1.00
		Ponding	1.00	 		l	
.25B:							
Stutts	65	· -		Very limited		Very limited	1
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer   Too sandy	1.00	 		Seepage 	1.00 
Kalkaska	   35	  Very limited		  Very limited		  Very limited	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	į	layer	į	j	į	Seepage	1.00
		Too sandy	1.00				
.25D:	 			 		 	
Stutts	65	Very limited	į	Very limited	į	Very limited	İ
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer Too sandy	1.00	Slope	0.37	Seepage	1.00
		Slope	0.37	 		Slope 	
		ļ			İ		
Kalkaska	25	Very limited   Seepage, bottom	1.00	Very limited   Seepage	1.00	Very limited   Too sandy	1.00
		layer		Slope	0.37	Seepage	1.00
	İ	Too sandy	1.00			Slope	0.37
		Slope	0.37		İ		
.25E:	 	[		 		 	
Stutts	55	Very limited	į	  Very limited	İ	  Very limited	İ
		Slope	1.00	Slope	1.00	:	1.00
		Seepage, bottom	1.00	Seepage	1.00	:	1.00
	 	Too sandy	1.00	 		Seepage 	1.00
Walles who		 		 		 	
Kalkaska	45 	Very limited   Slope	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
		Seepage, bottom	1.00	Siope   Seepage	1.00		1.00
	i	layer				Seepage	1.00
		Too sandy	1.00	I	1	1	1

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar	У	Area sanitary   landfill		Daily cover for landfill	r
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and   limiting features	Value
135B: Munising, calcareous substratum	1	Very limited  Depth to  saturated zone  Depth to thick	      1.00    1.00	-		pan Depth to	        1.00    1.00
Ensley	   25     	cemented pan Very limited Depth to saturated zone Ponding	    1.00    1.00	saturated zone	    1.00    1.00	saturated zone 	    1.00    1.00
145C: Munising, dissected, very stony	     50     	  Very limited   Depth to   saturated zone   Depth to thick   cemented pan	      1.00    1.00	Very limited Depth to cemented pan Depth to saturated zone		Very limited Depth to cemented pan Depth to saturated zone	        1.00    1.00
Yalmer, dissected, very stony	   35         	Very limited Depth to saturated zone Too sandy Depth to thin cemented pan	  1.00    1.00  0.50	saturated zone		  Very limited   Depth to cemented   pan   Depth to   saturated zone   Too sandy   Seepage	    1.00    1.00    1.00
146B: Munising, stony	   60     	   Very limited   Depth to   saturated zone   Depth to thick   cemented pan	    1.00    1.00	  Very limited   Depth to cemented   pan   Depth to   saturated zone		  Very limited   Depth to cemented   pan   Depth to   saturated zone	    1.00    1.00
Skanee, stony	   30       	   Very limited   Depth to   saturated zone   Depth to thin   cemented pan	  1.00    0.50	   Very limited   Depth to cemented   pan   Depth to   saturated zone		   Very limited   Depth to cemented   pan   Depth to   saturated zone	  1.00    1.00
147A: Skanee, very stony	   55     	   Very limited   Depth to   saturated zone   Depth to thin   cemented pan	    1.00    0.50	  Very limited   Depth to cemented   pan   Depth to   saturated zone	    1.00    1.00	  Very limited   Depth to cemented   pan   Depth to   saturated zone	    1.00    1.00
Gay, very stony	   35     	Very limited Depth to saturated zone Ponding	  1.00    1.00	   Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	   Very limited   Depth to   saturated zone   Ponding	    1.00    1.00
148B: Shoepac	70 70	  Very limited   Depth to   saturated zone	      1.00 	  Very limited   Depth to   saturated zone	      1.00 	  Very limited   Depth to   saturated zone	      1.00 

Table 13b.--Sanitary Facilities--Continued

and soil name	Pct.   Trench sanitary   of   landfill   map     unit		У	Area sanitary landfill	Daily cover for landfill	r	
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
   148B:   Ensley	20	! <del>-</del>	1	    Very limited	      1.00	    Very limited	
   		Depth to   saturated zone   Ponding	1.00    1.00	saturated zone	1.00    1.00	saturated zone	1.00    1.00
155A:		 		 		 	i
Zeba, very stony	55	  Very limited   Depth to   saturated zone	1	  Very limited   Depth to   saturated zone	  1.00 	  Very limited   Depth to   saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Jacobsville, very		 		 		 	
stony    	30	  Very limited   Depth to   saturated zone	1.00	Very limited   Depth to   saturated zone	  1.00 	  Very limited   Depth to   saturated zone	1.00
		Depth to bedrock Ponding	:	Depth to bedrock		: -	!
		Ponding	1.00	Ponding 	1.00 	Ponding 	1.00
157B:			į	į	į		į
Reade	45	Very limited   Depth to	1	Very limited   Depth to	  1.00	Very limited   Depth to	1.00
		saturated zone		saturated zone	<b>1.</b> 00	saturated zone	
į		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
   Nahma	40	  Verv limited	 	  Very limited	 	  Very limited	
		Depth to	1.00	-	1.00	: -	1.00
		saturated zone		saturated zone		saturated zone	
		Depth to bedrock Ponding	1.00  1.00	Depth to bedrock Ponding	1.00  1.00	: -	1.00
158C:							
Munising, dissected,   stony	50	  Verv limited		  Very limited	 	  Very limited	
		Depth to	1.00	Depth to cemented			1.00
		saturated zone	1 00	pan Donth to	  1.00	pan Donth to	1.00
		Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				į	ĺ		İ
Abbaye, dissected, stony	35	  Verv limited	 	  Very limited	 	  Very limited	
		Depth to	1.00	: -	1.00	: -	1.00
		saturated zone	!	saturated zone		saturated zone	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
160B:							
Paquin	55			Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Seepage, bottom	1.00	: -	1.00	: -	1.00
į		layer	İ	saturated zone	İ	Seepage	1.00
I		Too sandy Depth to thin	1.00	Seepage	1.00	Depth to saturated zone	0.86
1							

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover for landfill	r
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1.600		1					
160B: Finch	   45 	  Very limited   Depth to	1.00	  Very limited   Depth to cemented		  Very limited   Depth to cemented	1.00
	   	saturated zone Depth to thick cemented pan	1.00	pan Depth to saturated zone	  1.00 	pan Depth to saturated zone	1.00
	   	Seepage, bottom	1.00	!	  1.00 	· -	1.00
		Too sandy	1.00	 	 	 	
161B:				 		 	
Yellowdog, stony	50 	Very limited   Depth to bedrock   Seepage, bottom	1	Very limited   Seepage   Depth to bedrock	1.00	· -	  1.00  1.00
	   	layer   Too sandy	1.00	Depth to bedrock	1.00   	Depth to bedrock	
	į	Large stones	0.50		į		0.43
Buckroe, stony	40	  Very limited   Depth to bedrock		  Very limited   Depth to bedrock	    1.00	  Very limited   Depth to bedrock	1 1.00
	; 	Seepage, bottom	1.00		   	Too sandy	1.00
		Too sandy	1.00	 	 	Gravel content	0.90
165B:		 		 	İ	 	į
Chocolay, very stony	55	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to   saturated zone	1.00
	   	Depth to bedrock Large stones	1.00	Depth to bedrock	  1.00 	Depth to bedrock   Large stones	1.00
Waiska, very stony			İ	    Very limited	İ	    Very limited	į
waiska, very scony		Seepage, bottom	1.00	: -	1.00	Too sandy	1.00
		layer   Too sandy	1.00	 	 	Seepage   Gravel content	1.00
166:		 		 	 	 	
Skandia	85 	Very limited   Depth to	1.00	Very limited   Depth to	  1.00	Very limited   Depth to	  1.00
	İ	saturated zone  Depth to bedrock	1 00	saturated zone Depth to bedrock	1 00	saturated zone Organic matter	1.00
		Organic matter	1.00	Seepage	1.00	content	
	 	content Seepage, bottom	1.00	Ponding	1.00	Depth to bedrock Ponding	1.00
		layer Ponding	1.00	 	   	Seepage	0.09
167:		 		 	 	 	
Skandia, stony	55			Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00 	Depth to saturated zone	1.00
	<u></u>	Depth to bedrock	1	Depth to bedrock		Organic matter	1.00
		Organic matter	1.00	Seepage Ponding	1.00  1.00	content Depth to bedrock	1.00
	İ	Seepage, bottom	1.00	-	İ	Ponding	1.00
	i .	layer	1	I .	1	Seepage	0.09

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary		Daily cover for	r
	   	   Rating class and   limiting features	Value	Rating class and   limiting features	Value	   Rating class and   limiting features	Value
167:				 	 	 	
Jacobsville, stony	35	Very limited	į	Very limited	j	  Very limited	i
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Depth to bedrock	:	Depth to bedrock		Depth to bedrock	:
		Ponding	1.00	Ponding	1.00	Ponding	1.00
170B:		 	l I	 	l I	 	
Chocolay, very stony	90	  Verv limited	i	  Very limited	i i	  Very limited	i
		Depth to	1.00	Depth to	1.00	: -	1.00
	į	saturated zone	į	saturated zone	j	saturated zone	İ
	ĺ	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones	0.95			Large stones	0.95
						Gravel content	0.01
171B:		 		 	 	 	
Paavola, very stony	90	  Very limited	İ	  Very limited	İ	  Very limited	i
	į	Depth to	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		saturated zone		pan		pan	
		Depth to thick	1.00		1.00	Depth to	1.00
		cemented pan		saturated zone		saturated zone	
		Too sandy	1.00	Seepage	1.00	· -	1.00
		 		1	 		1.00
		 		 	l İ	Graver concent	1.00
172D:	i		İ		İ		i
Buckroe, very	į	İ	į	j	j	İ	į
bouldery	70	Very limited		Very limited		Very limited	
		Depth to bedrock	:	Depth to bedrock		:	:
		Seepage, bottom	1.00	Slope	1.00	· -	1.00
		layer					1.00
		Too sandy Slope	1.00	1	l I		1.00
		Slope	1	 	 	Graver concent	0.30
Rock outcrop	15	Not rated		Not rated		  Not rated	į
172F:		 	l I	 	 	 	 
Buckroe, very			i		i i	 	i
bouldery	70	  Very limited	i	  Very limited	İ	  Very limited	i
-	į	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
	İ	Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom	1.00			Too sandy	1.00
		layer		!		Seepage	1.00
		Too sandy	1.00	 	 	Gravel content	0.90
Rock outcrop	15	  Not rated		  Not rated		  Not rated	
176B:		 		 	 	 	1
Croswell	50	  Very limited		  Very limited	l I	  Very limited	
		Depth to	1.00	: -	1.00	: -	1.00
	i	saturated zone	İ	saturated zone		-	1.00
		Seepage, bottom	1.00	Seepage	1.00		0.86
		layer				saturated zone	
		Too sandy	1.00	!	ļ	[	
					ļ		

Table 13b.--Sanitary Facilities--Continued

Rating class and   Value   Value   V	Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover for landfill	r
Nerross			Rating class and	Value		Value		Value
New   Sepage   1.00   Depth to   ding   Ponding   Ponding   Pond	176B.							
		40	  Very limited		  Very limited		  Very limited	
Seepage, bottom   1.00   Seepage   1.00   Too sandy   1.00   Seepage   Ponding   1.00   Seepage   Ponding   1.00   Ponding   Ponding   Ponding   Ponding		ĺ	Depth to	1.00	Depth to	1.00	Depth to	1.00
layer			saturated zone		1		saturated zone	
181E:   Frohling, dissected,   Stony				1.00			:	1.00
					Ponding	1.00		1.00
Frohling, dissected, stony			-	!		 	Ponding	1.00
Stony	181E:	 	 		 	 	 	 
Depth to thick   1.00   Depth to cemented   1.00   Depth to cemented   pan   pan     pan	Frohling, dissected,							
Cemented pan   Slope   1.00   Slope   1.00   Slope   1.00   Slope   1.00   Slope   1.00   Slope   1.00   Slope   1.00   Slope   1.00   Slope   1.00   Slope   1.00   Slope   1.00   Depth to cemented   eepage   1.00   Seepage   1.00   Se	stony	60	: -		-		: -	
Slope			: -	1.00	-	1.00	-	1.00
Tokiahok, dissected, stony			· -	1 00	-	  1 00	: -	1.00
Stony			Slope		Slope		Slope	
Depth to thick   1.00   Depth to cemented   1.00   Depth to cemented   pan   pan     pan								
Cemented pan   Slope   1.00   Seepage   1.00   Seepage   1.00   Seepage   1.00   Seepage   1.00   Seepage   1.00   Seepage   1.00   Slope   Too sandy   1.00   Slope   Too sandy   1.00   Too sandy   1.00   Too sandy   1.00   Too sandy   1.00   Seepage   1.00   Too sandy   1.00   Seepage   1.00   Gravel content   lope   1.00   Slope   1.00   Slope	stony	30						1 00
Slope		 	-	1.00		1		1.00
Too sandy			· -	1.00	: -	1.00	: -	1.00
McMaster		İ	: <del>-</del>	1				1.00
McMaster		į	-   	į		İ	Too sandy	0.50
Depth to saturated zone   Seepage   Seepage   Seepage   Seepage   Seepage	185B:						 	
Saturated zone   Saturated zone   Seepage   Seepage   Seepage   Seepage	McMaster	90	-		-		: -	
Seepage, bottom   1.00   Seepage   1.00   Gravel content   layer			-	1.00	: -	1.00	:	1.00
layer			!					1.00
Too sandy   1.00				1.00	Seepage	11.00	!	0.96
Chatham, stony   85   Very limited			-	1.00			:	
Seepage, bottom   1.00   Seepage   1.00   Large stones     layer	186B:	 	 		 	 	 	 
layer	Chatham, stony	85	Very limited	į	Very limited	į	Very limited	į
Large stones   1.00			Seepage, bottom	1.00	Seepage	1.00	Large stones	1.00
186D:  Chatham, stony   85   Very limited   limited   Very limited   Very l		 	:	1.00	 	 	Seepage 	0.63
Chatham, stony	10CD:					İ		
layer		   85	  Very limited		  Very limited	 	  Very limited	
Large stones   1.00		İ	Seepage, bottom	1.00	Seepage	1.00	Large stones	1.00
Slope   0.37			layer		Slope	0.37	Seepage	0.63
Reade		 	-	1	 	 	Slope 	0.37
Reade	1070	į	   	į	  -	İ	  -	į
Depth to   1.00   Depth to   1.00   Depth to   saturated zone   saturated zone   saturated zone   Depth to bedrock   1.00   Depth to bedrock   1.00   Depth to bedrock   1.0		85	  Very limited		  Very limited	 	  Very limited	
saturated zone   satura				1.00	-		: -	1.00
188B:		į	saturated zone	į	-	į	:	į
		 	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Eben, stony 85   Very limited   Very limited   Very limited								
	Eben, stony	85			: -		: -	
				1.00	Seepage	1.00	:	1.00
		 	-	1 00	 	 		1.00
			·	1	! 	İ	!	0.68

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo	or
	   	Rating class and limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
188D:	 	 		 		 	
Eben, stony	90	  Very limited	İ	  Very limited	İ	  Very limited	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		Slope	0.37		1.00
		Too sandy	1.00			Gravel content	0.85
		Large stones   Slope	0.68			Large stones   Slope	0.68
188E:	 	 		 		 	
Eben, stony	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy Seepage	1.00
		Too sandy	1.00	 		Gravel content	0.85
		Large stones	0.68			Large stones	0.68
191B:							
Ruse	50	! <del>-</del>	11 00	Very limited	1.00	Very limited	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock Depth to	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		1
	İ	Seepage, bottom	1.00	Ponding	1.00	Ponding	1.00
	   	layer   Ponding	1.00	i I	İ	Seepage	0.21
Ensign	1 40			    Very limited	į	    Very limited	į
Ensign	40	Depth to	1.00	Depth to	1.00	Depth to bedrock	1.00
		saturated zone		saturated zone		Depth to	1.00
	į	Depth to bedrock	1.00	Depth to bedrock	1.00	saturated zone	İ
		Organic matter content	1.00	 		Organic matter content	1.00
197B:	 	 	İ	i I	İ	 	İ
Shoepac	50	  Very limited	İ	  Very limited	İ	  Very limited	i
	ĺ	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
Trenary	40	Not limited	İ	Not limited	į	  Not limited	į
198B:					į		
Shoepac	60	Very limited	1.00	Very limited	1 00	Very limited	1.00
		Depth to saturated zone		Depth to saturated zone	1.00	Depth to saturated zone	
Reade	30	  Very limited		  Very limited		  Very limited	
		Depth to	1.00		1.00		1.00
	 	saturated zone Depth to bedrock	  1.00	saturated zone Depth to bedrock	  1.00	saturated zone Depth to bedrock	1.00
				!	ļ		ļ
200A:					1		
Charlevoix	55 	Very limited   Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone		saturated zone		saturated zone	
Ensley	30	  Very limited		  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00	: -	1.00
		saturated zone		saturated zone		saturated zone	1.00
	i	Ponding	1.00	Ponding	1.00	Ponding	

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo landfill	r
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Valu
202B:		l I		 	 		
Sauxhead, very stony	85	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to bedrock   Depth to	  1.00  1.00
		Depth to bedrock Seepage, bottom	!	Depth to bedrock	1.00	saturated zone Seepage	    1.00
		layer Too sandy	0.50			Gravel content Too sandy	0.94
206B:		 			 		
Traunik	90	Very limited   Seepage, bottom	1	Very limited   Seepage	  1.00	Very limited   Too sandy	1.00
	į	layer Too sandy	1.00		į i	Seepage Gravel content	1.00
		100 sandy				Graver content	
206D: Traunik	90	  Very limited		  Very limited	 	  Very limited	
		Seepage, bottom	1.00		1.00	Too sandy Seepage	1.00
		layer   Too sandy	1.00	Slope 	0.16 		1.00
		Slope	0.16		į	Slope	0.16
211B:		 		 	 		
Munising	55	Very limited   Depth to	1.00	Very limited   Depth to cemented		Very limited   Depth to cemented	  1.00
	i	saturated zone		pan		pan	
		Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
3hh ann					į		į
Abbaye	35	Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone Depth to bedrock	1.00	saturated zone Depth to bedrock	  1.00	saturated zone  Depth to bedrock	1.00
214B:							
Kalkaska	60	: -	:	  Very limited		Very limited	
		Seepage, bottom   layer	1.00 	Seepage 	1.00 	Too sandy Seepage	1.00  1.00
		Too sandy 	1.00	 	 		
Blue Lake	30	  Very limited   Seepage, bottom	1.00	  Very limited   Seepage	    1.00	Very limited Too sandy	1.00
	<u> </u>	layer Too sandy	1.00		į	Seepage	0.57
214D: Kalkaska	55	  Very limited		  Very limited	 	  Very limited	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer   Too sandy	1.00	Slope 	0.37 	Seepage Slope	1.00  0.37
		Slope 	0.37	 	 		
Blue Lake	35	Very limited	1.00	  Very limited		Very limited	1 00
		Seepage, bottom	11.00	Seepage Slope	1.00  0.37	Too sandy Seepage	1.00
		Too sandy	1.00			Slope	0.37
	1	Slope	0.37		I		1

Table 13b.--Sanitary Facilities--Continued

Rating class and		Area sanitary landfill		Daily cover for landfill		
limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	
!	<u> </u>	!	!		Ţ	
  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	
Seepage, bottom   layer   Too sandy	1.00      1.00	Seepage   	1.00	Too sandy Seepage	1.00  1.00	
  Very limited		  Very limited	:	  Very limited		
Slope   Seepage, bottom   layer	1.00  1.00	Slope   Seepage 	1.00  1.00 	Slope   Too sandy   Seepage	1.00  1.00  0.57	
Too sandy	1.00	 	; 			
  Very limited		  Very limited		  Very limited		
Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock Depth to	1.00	
Depth to bedrock Seepage, bottom layer	1.00  1.00 	Seepage   Depth to bedrock 	1.00  1.00 	saturated zone   Too sandy   Seepage	  1.00  1.00	
Too sandy	1.00					
  Very limited   Depth to	1.00	  Very limited   Depth to	    1.00	  Very limited   Depth to bedrock	1.00	
saturated zone Depth to bedrock	  1.00  1.00	saturated zone Depth to bedrock	1.00	Depth to saturated zone	1.00    1.00	
Seepage, bottom   layer   Too sandy	    1.00	 	   	Too sandy   Seepage 	0.09	
		  Very limited	:	  Very limited		
saturated zone	į	saturated zone	İ	Depth to	1.00	
Seepage, bottom	1.00	Ponding	1.00	Too sandy	1.00	
layer   Too sandy   Ponding	  1.00  1.00	   	   	Seepage   Ponding 	1.00	
			į		į	
Seepage, bottom	1.00	  Very limited   Seepage	1.00	Too sandy	1.00	
layer   Too sandy	  1.00	 		Seepage 	1.00	
Seepage, bottom	1.00	Seepage	1.00	Too sandy	  1.00  1.00	
Too sandy	1.00			Seepage   Slope 	0.37	
Very limited   Seepage, bottom   layer	  1.00 	Very limited   Seepage 	  1.00 	-	  1.00  1.00	
	Depth to bedrock Seepage, bottom layer Too sandy Ponding  Very limited Seepage, bottom layer Too sandy  Very limited Seepage, bottom layer Too sandy  Very limited Seepage, bottom layer Too sandy Slope  Very limited Seepage, bottom	saturated zone   Depth to bedrock   1.00     Seepage, bottom   1.00     layer   Too sandy   1.00     Very limited   Seepage, bottom   yer     Very limited   Layer   Layer     Very limited   Layer   Layer     Very limited   Layer   Layer     Very limited   Layer   Layer     Very lim	saturated zone   saturated zone   Depth to bedrock   1.00   Depth to bedrock   Seepage, bottom   1.00   Ponding   layer   Too sandy   1.00   Ponding   1.00   Ponding   1.00   Ponding   1.00   Ponding   1.00   Ponding   1.00   Ponding   1.00   Ponding   1.00   Ponding   1.00   Ponding   1.00   Ponding   1.00   Ponding   Pondi	Saturated zone   Saturated zone     Depth to bedrock   1.00   Depth to bedrock   1.00     Seepage, bottom   1.00   Ponding   1.00     Layer               Too sandy   1.00       Ponding   1.00       Very limited     Very limited     Seepage, bottom   1.00   Seepage   1.00     Layer               Very limited     Very limited     Seepage, bottom   1.00   Seepage   1.00     Layer                   Very limited                   Very limited                   Seepage, bottom   1.00   Seepage   1.00     Layer                     Too sandy   1.00             Slope     0.37       Very limited                   Very limited                   Seepage, bottom   1.00   Seepage   1.00     Layer                           Lager                             Lager                                   Lager	saturated zone   Saturated zone   Depth to   Depth to bedrock   1.00   Depth to bedrock   1.00   Saturated zone   Seepage, bottom   1.00   Ponding   1.00   Too sandy   Layer   Seepage   Ponding   Ponding   1.00   Ponding   Ponding   1.00   Very limited   Very limited   Very limited   Seepage, bottom   1.00   Seepage   1.00   Too sandy   Layer   Seepage   1.00   Too sandy   Layer   Seepage   1.00   Too sandy   Layer   Slope   0.37   Seepage   Too sandy   1.00   Seepage   1.00   Too sandy   Layer   Slope   0.37   Seepage   Loo sandy   1.00   Seepage   1.00   Too sandy   Layer   Slope   0.37   Seepage   Loo sandy   1.00   Seepage   1.00   Too sandy   Layer   Slope   0.37   Seepage   Loo sandy   1.00   Seepage   1.00   Too sandy   Layer   Slope   Slope   Slope   Loo sandy   1.00   Seepage   1.00   Too sandy   Layer   Seepage   1.00   Too sandy   Layer   Seepage   1.00   Too sandy   Layer   Seepage   1.00   Too sandy   Layer   Seepage   1.00   Too sandy   Layer   Seepage   1.00   Too sandy   Layer   Seepage   1.00   Too sandy   Layer   Seepage   1.00   Seepage   Layer   Seepage	

Table 13b.--Sanitary Facilities--Continued

Rating class and limiting features  Very limited Seepage, bottom layer Too sandy	<u> </u> 	Rating class and limiting features	Value	Rating class and	Value
Seepage, bottom		 		limiting features	value
· -		  Very limited   Seepage	      1.00	    Very limited   Too sandy   Seepage	      1.00
	1.00	   			
    Very limited		    Very limited		    Very limited	
Seepage, bottom layer Too sandy	1.00	: -	1.00	Too sandy Seepage Slope	1.00  1.00  0.37
Slope	0.37	 	į	 	
Very limited   Seepage, bottom   layer   Too sandy   Slope	  1.00    1.00  0.37	Very limited   Seepage   Slope 	  1.00  0.37 	Very limited Too sandy Seepage Slope	  1.00  1.00  0.37
Very limited   Slope   Seepage, bottom   layer   Too sandy	  1.00  1.00 	Very limited   Slope   Seepage 	  1.00  1.00 	Very limited   Slope   Too sandy   Seepage	  1.00  1.00  1.00
    Very limited	į	    Very limited	į	    Very limited	
Slope   Seepage, bottom   layer   Too sandy	1.00  1.00    1.00	Slope   Seepage 	1.00  1.00 	Slope   Too sandy   Seepage	1.00  1.00  1.00
Slope   Seepage, bottom   layer	1.00	Very limited   Slope   Seepage 	  1.00  1.00 	Very limited   Slope   Too sandy   Seepage	  1.00  1.00  1.00
    Very limited	į	    Very limited		    Very limited	
Slope   Seepage, bottom   layer   Too sandy	1.00  1.00    1.00	Slope   Seepage 	1.00  1.00 	Slope   Too sandy   Seepage 	1.00  1.00  1.00
	į Į		į Į	 	İ
Very limited   Depth to   saturated zone   Seepage, bottom	  1.00    1.00	Very limited   Depth to   saturated zone   Seepage	  1.00    1.00	Very limited   Too sandy   Seepage   Depth to	  1.00  1.00  0.86
layer Too sandy	1.00	 		saturated zone	
    Verv limited	   	    Verv limited		    Verv limited	
Seepage, bottom	1.00	Seepage	1.00	Too sandy Seepage	1.00
	Seepage, bottom layer Too sandy  Very limited Slope Seepage, bottom layer Too sandy  Very limited Depth to saturated zone Seepage, bottom layer Too sandy  Very limited Seepage, bottom	Slope   1.00 Seepage, bottom   1.00 layer Too sandy   1.00  Very limited   Slope   1.00 Seepage, bottom   1.00 layer Too sandy   1.00  Very limited   Depth to   1.00 saturated zone   Seepage, bottom   1.00 layer Too sandy   1.00  Very limited   1.00 layer Too sandy   1.00  Very limited   1.00 layer   1.00  Very limited   1.00 layer   1.00 layer   1.00 layer   1.00 layer   1.00 layer   1.00 layer   1.00	Slope   1.00   Slope   Seepage   1.00   Seepage   1.00   Seepage   1.00   Seepage   1.00   Seepage   1.00   Seepage   1.00   Slope   Seepage   1.00   Slope   Seepage   1.00   S	Slope	Slope

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary landfill		Daily cover fo	or
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
	İ		<u> </u>		†		i i
233B:					ļ		
Abbaye, very stony	50	: -	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		Depth to saturated zone	1	saturated zone	1	saturated zone	1
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
							ļ
Zeba, very stony	35			Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
0243							
234A: Levasseur, very	 	 		 	 	 	
stony	55	  Very limited	İ	  Very limited	i	  Very limited	i
•	İ	Depth to	1.00	Depth to	1.00	Depth to bedrock	1.00
	İ	saturated zone	ĺ	saturated zone	ĺ	Depth to	1.00
		Depth to bedrock	:	Depth to bedrock	1.00	saturated zone	1
		Seepage, bottom	1.00		ļ	Too sandy	1.00
	l i	layer Too sandy	11 00			Seepage	1.00
		Large stones	1.00  0.85	 		Large stones 	0.85
	İ		İ	İ	İ		į
Burt, very stony	35			Very limited		Very limited	
	l i	Depth to	1.00	Depth to	1.00	Depth to bedrock	1
	 	saturated zone Depth to bedrock	1 00	saturated zone Depth to bedrock	1 00	Depth to saturated zone	1.00
		Seepage, bottom	1.00	Ponding	1.00	Too sandy	1.00
		layer				Seepage	1.00
	İ	Too sandy	1.00	j	į	Ponding	1.00
		Ponding	1.00				
235B:	 	 		 		 	
Sauxhead, very stony	60	  Very limited	į	  Very limited	į	  Very limited	i
		Depth to	1.00	Depth to	1.00	Depth to bedrock	1.00
		saturated zone		saturated zone		Depth to	1.00
		Depth to bedrock	:	Depth to bedrock	1.00	saturated zone	
	 	Seepage, bottom	1.00	 		Seepage   Gravel content	1.00
		Too sandy	0.50			Too sandy	0.50
							ļ
Burt, very stony	30	! <del>-</del>	11 00	Very limited	11 00	Very limited	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock Depth to	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	saturated zone	1.00
		Seepage, bottom	1.00	Ponding	1.00	Too sandy	1.00
	İ	layer	į	į	į	Seepage	1.00
		Too sandy	1.00			Ponding	1.00
		Ponding	1.00				
236B:		 		 		 	1
Waiska, extremely				İ			İ
bouldery	85	Very limited		Very limited		Very limited	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	I	layer	1	1	1	Seepage	1.00
		Too sandy	1.00	1	i	Gravel content	1.00

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	Trench sanitar	У	Area sanitary		Daily cover fo	or
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
236D: Waiska, extremely bouldery		      Very limited	   	      Very limited	   	      Very limited	
Douldely		Seepage, bottom   layer	1.00	Seepage   Slope	1.00  0.16	Too sandy	1.00
	   	Too sandy   Slope	1.00	 		Gravel content	1.00
237B:	 		1	 		 	1
Chatham	65	  Very limited   Seepage, bottom	1.00	  Very limited   Seepage	1.00	  Very limited   Large stones	1.00
		layer Large stones	1.00	 		Seepage 	0.63
Davies	   20 	  Very limited   Depth to	    1.00	  Very limited   Depth to	    1.00	  Very limited   Depth to	1.00
	j 	saturated zone Seepage, bottom	1.00	saturated zone	1.00	saturated zone Too sandy	1.00
		layer		Ponding	1.00	Seepage	1.00
		Too sandy	1.00		ļ	Ponding	1.00
	   	Ponding   Large stones	1.00	 	   	Gravel content	0.25
239B:				 			
Longrie	50	Very limited   Depth to bedrock	1	Very limited   Depth to bedrock	1	Very limited   Depth to bedrock	1.00
Shingleton	40	  Very limited		  Very limited		  Very limited	
	   	Depth to bedrock Seepage, bottom layer	1.00  1.00 	Depth to bedrock   	1.00   	Depth to bedrock	1.00
240F:		 		 		 	
Trout Bay	30	Very limited   Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
	   	saturated zone Depth to bedrock	į	saturated zone   Depth to bedrock	İ	saturated zone   Organic matter	1.00
	į	Organic matter	1.00	Slope	1.00	content	į
		content				Depth to bedrock	
	   	Slope   Seepage, bottom   layer	1.00  1.00 	 		Slope   Seepage 	1.00
Gongeau	25	  Very limited   Depth to	1.00	  Very limited   Depth to	1.00	  Very limited   Depth to bedrock	1 00
		saturated zone Depth to bedrock	İ	saturated zone	İ	Depth to saturated zone	1.00
	į į	Seepage, bottom	1.00	 	İ	Too sandy Seepage	1.00
	   	Too sandy	1.00	   		   	
Shingleton	20	_	1	Very limited	1	  Very limited	
	 	Slope	1.00	Slope	1.00	-	
	   	Depth to bedrock Seepage, bottom layer	1.00  1.00 	Depth to bedrock   	   	Slope   	1.00   
Rock outcrop	   15	  Not rated		  Not rated		  Not rated	

Table 13b.--Sanitary Facilities--Continued

and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo landfill	r
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
241:							
Cathro	   55	  Very limited		  Very limited	l	  Very limited	
j		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Organic matter	1.00	Seepage	1.00	Organic matter	1.00
		content Ponding	1.00	Ponding	1.00	content Ponding	1.00
		Ponding	1.00	 		Seepage	0.16
		 			i	beepage	
Gay	35	Very limited	į	Very limited	į	Very limited	j
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
242B:		 	 	 		 	
Kalkaska, severely			i		i	 	i
burned	95	Very limited	į	Very limited	į	Very limited	j
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer			ļ	Seepage	1.00
		Too sandy	1.00	 		  -	
242D:		 	1	 		 	
Kalkaska, severely			İ		i		İ
burned	95	Very limited	į	Very limited	į	Very limited	j
ļ		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		Slope	0.37	Seepage	1.00
		Too sandy Slope	1.00	 	l I	Slope	0.37
		blope		 	i	 	
242F:			į	İ	į		j
Kalkaska, severely							
burned	90	Very limited	1	Very limited	1	Very limited	
		Slope	1.00	Slope   Seepage	1.00	Slope	1.00
 		Seepage, bottom	1	Seepage 	1	Too sandy Seepage	1.00
		Too sandy	1.00		i		
j		į	İ	į	İ	İ	İ
243:					ļ		
Markey	95	Very limited   Depth to	11 00	Very limited	11 00	Very limited	1.00
		saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1
		Seepage, bottom	1.00	Seepage	1.00		1.00
		layer	į	Ponding	1.00	Seepage	1.00
				i de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	1	D 42	1.00
   		Too sandy	1.00			Ponding	12.00
		Too sandy Ponding	1.00	 		Ponding	
245R•		· -	:	 	     	Ponding    -	
245B: Trout Bay	       40	Ponding	:	        Very limited	     	-    - 	
,	       40	· -	:	      -  Very limited   Depth to	          1.00	Ponding      -  Very limited   Depth to	          1.00
,	       <b>4</b> 0	Ponding  Very limited  Depth to  saturated zone	1.00          1.00		        1.00	      Very limited	     
,	40	Ponding  Very limited  Depth to  saturated zone  Depth to bedrock	1.00        1.00    1.00	Depth to   saturated zone   Depth to bedrock	1.00	  Very limited   Depth to   saturated zone   Organic matter	     
,	40	Ponding  Very limited  Depth to  saturated zone  Depth to bedrock  Organic matter	1.00          1.00	Depth to saturated zone	į	   Very limited   Depth to   saturated zone   Organic matter   content	      1.00    1.00
,	40	Ponding  Very limited  Depth to saturated zone  Depth to bedrock  Organic matter content	1.00      1.00    1.00  1.00	Depth to   saturated zone   Depth to bedrock	1.00	   Very limited   Depth to   saturated zone   Organic matter   content   Depth to bedrock	      1.00    1.00
,	40	Ponding  Very limited  Depth to  saturated zone  Depth to bedrock  Organic matter	1.00        1.00    1.00	Depth to   saturated zone   Depth to bedrock	1.00	   Very limited   Depth to   saturated zone   Organic matter   content	        1.00    1.00

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary landfill		Daily cover fo landfill	r
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
245B:		 		 		 	
Lupton	30	  Very limited		  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Organic matter content	1.00	Seepage   Ponding	1.00	Organic matter content	1.00
		Seepage, bottom	1.00	Foliating	1	Ponding	1.00
	İ	layer			i	Seepage	0.16
		Ponding	1.00				
_							
Gongeau	20	:		Very limited	1.00	Very limited	11 00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock Depth to	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	saturated zone	1
	i	Seepage, bottom	1.00	Ponding	1.00	Too sandy	1.00
	į	layer	į	j	į	Seepage	1.00
		Too sandy	1.00			Ponding	1.00
		Ponding	1.00	!	!	!	
246B:		 		 		 	
Garlic	90	  Very limited		  Very limited		  Very limited	1
Garric	50	Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	i	layer				Seepage	1.00
	į	Too sandy	1.00	j	į	j	i
		!	[	!	[	!	
246D:		 		 		 	
Garlic	90	Seepage, bottom	1.00	Very limited   Seepage	1.00	Very limited   Too sandy	1.00
		layer	1.00	Slope	0.37	Seepage	1.00
	i	Too sandy	1.00			Slope	0.37
	İ	Slope	0.37	İ	İ	İ	j
246E: Garlic		  Very limited		  Very limited		  Very limited	
Gallic	30	Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	į	layer	į		i	Seepage	1.00
		Too sandy	1.00	[	[	[	
248B:		 					
Escanaba	   50	  Not limited		  Very limited		  Not limited	1
			İ	Seepage	1.00		i
	İ	j	İ	İ	İ	į	İ
Greylock	40	Not limited	[	Not limited	!	Not limited	
248D:							
Escanaba	   50	  Somewhat limited		  Very limited		  Somewhat limited	
		Slope	0.37	Seepage	1.00	Slope	0.37
	į			Slope	0.37		
		[	[	[	[	[	
Greylock	40	!	1	Somewhat limited	!	Somewhat limited	
	 	Slope	0.37	Slope	0.37	Slope	0.37
248E:		! 		! 		! 	
Escanaba	50	  Very limited	i	  Very limited	i	  Very limited	i
		Slope	1.00	Slope	1.00	Slope	1.00
		!	İ	Seepage	1.00	!	
					1		
Greylock	40	:	1.00	Very limited	1.00	Very limited	1.00
		Slope	1	Slope	1	Slope	1
		I	1	I	1	I	1

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover for landfill	r
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
249B:	 	 	l I	l I	 	l	
Sauxhead	55	  Very limited   Depth to	1.00	  Very limited   Depth to	    1.00	  Very limited   Depth to bedrock	    1.00
		saturated zone		saturated zone		Depth to	1.00
		Depth to bedrock	:	Depth to bedrock	1.00	saturated zone	
		Seepage, bottom	1.00	 			1.00
		layer   Too sandy	0.50	 	 	!	0.50
	į	j	į	İ	į	į	İ
Skandia	35	· -		Very limited		Very limited	
		Depth to	1.00	Depth to	1.00		1.00
		saturated zone Depth to bedrock	1 00	saturated zone Depth to bedrock		saturated zone Organic matter	1.00
	 	Organic matter	1.00	Seepage	1.00	content	1
		content	1	Ponding	1.00	Depth to bedrock	1 1.00
		Seepage, bottom	1.00			:	1.00
		layer			İ		0.09
	İ	Ponding	1.00	j	İ		İ
0500							
250B:		 		 	 	  -	
Chocolay, extremely stony	   55	  Very limited	1	  Very limited	l I	  Very limited	 
BCOMY	33	Depth to	1.00		1.00		1.00
		saturated zone		saturated zone		saturated zone	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	į	Large stones	0.95	į -	İ	Large stones	0.95
Jacobsville, extremely stony	30	  Vorus limited	1	  Very limited	 	  Very limited	
extremely stony	30	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	į	Ponding	1.00	: -	1.00	:	1.00
251B:						 	
Greylock	90	Not limited	i i	Not limited	i İ	Not limited	
			į		İ		į
251D:		!		!		[	
Greylock	85	!		Somewhat limited		Somewhat limited	
	 	Slope	0.37	Slope	0.37	Slope	0.37
252A:			İ		İ		i
Finch	50	Very limited	İ	Very limited	ĺ	Very limited	ĺ
		Depth to	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		saturated zone		pan		pan	
		Depth to thick	1.00	Depth to	1.00		1.00
		cemented pan		saturated zone		saturated zone	
	 	Seepage, bottom	1.00	Seepage	1.00	:	1.00  1.00
		Too sandy	1.00	 		beepage	
		İ		ļ		!	
Kinross	40	Very limited		Very limited		Very limited	
		Depth to	1.00	Depth to	1.00		1.00
		saturated zone		saturated zone		saturated zone	
	 	Seepage, bottom	1.00	Seepage	1.00	:	1.00
	 	layer Too sandy	1.00	Ponding	1.00		1.00  1.00
		Ponding	1.00	 	i I	101141119	
	1			1	!	1	

Table 13b.--Sanitary Facilities--Continued

and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo	r
	 	Rating class and limiting features	Value	Rating class and	Value	Rating class and	Value
254C:	 	 		 	 	 	
Kalkaska, dissected	55	  Very limited	İ	  Very limited	İ	  Very limited	İ
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer				Seepage	1.00
	 	Too sandy	1.00	 		 	l I
Blue Lake, dissected	35	  Very limited		  Very limited		  Very limited	
	İ	Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		[		Seepage	0.57
	 	Too sandy	1.00	  -		  -	 
254E:	 			 	i	 	
Kalkaska, dissected	55	Very limited	j	Very limited	į	Very limited	į
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	 	layer		Slope	1.00	Seepage	1.00
	 	Too sandy   Slope	1.00	 		Slope 	1.00
							İ
Blue Lake, dissected	35	Very limited		Very limited		Very limited	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	 	layer   Too sandy	1.00	Slope	1.00	Slope   Seepage	1.00
	 	Slope	1.00	 		Seepage	0.57
	İ	_	İ	İ	İ	İ	į
254F:							
Kalkaska, dissected	55	Very limited   Slope	1.00	Very limited   Slope	  1.00	Very limited   Slope	1.00
	 	Seepage, bottom	1.00	Siope   Seepage	1.00	Too sandy	1.00
		layer				Seepage	1.00
		Too sandy	1.00	!		!	
Plus Isks disserted	25	 		 		 	
Blue Lake, dissected	35 	Slope	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	İ	layer	j	İ	İ	Seepage	0.57
		Too sandy	1.00				
255D:	 	 	1	 		 	l I
Wallace	95	  Very limited		  Very limited	i	  Very limited	
	İ	Seepage, bottom	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		layer		pan		pan	ļ
	 	Too sandy	1.00	Seepage	1.00  0.01	Too sandy	1.00
	 	Depth to thin cemented pan	0.50	Slope	0.01	Seepage Slope	1.00
		Slope	0.01				
				!		!	ļ
256B:		 		 		 	
Whitewash	35 	Very limited   Seepage, bottom	1.00	Very limited   Seepage	  1.00	Very limited   Too sandy	1.00
			1				1 - 0 0
	İ	layer	i	İ	i	Seepage	1.00

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	landfill	У	Area sanitary		Daily cover for	r
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
0.55							
266A: Spot	   50 	  Very limited   Depth to	    1.00	  Very limited   Depth to cemented	    1.00	  Very limited   Depth to cemented	    1.00
	   	saturated zone   Seepage, bottom   layer	1.00	pan Depth to saturated zone	  1.00 	pan Depth to saturated zone	  1.00 
		Ponding	1.00	Seepage	1.00	!	1.00
	İ	Organic matter	1.00		1.00		1.00
	İ	content	İ	į	İ	Organic matter	1.00
		Depth to thin cemented pan	0.50	 	 	content	 
Finch	   40	  Very limited   Depth to	    1.00	  Very limited   Depth to cemented		  Very limited   Depth to cemented	    1 00
		saturated zone		pan	ĺ	pan	ĺ
		Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	 	Seepage, bottom	1.00	Seepage	1.00	!	1.00
	İ	layer			ĺ	:	1.00
	 	Too sandy	1.00	l I		 	 
267A: Finch	05	Vory limited	į	    Very limited	 	    Very limited	 
rinch	83	Depth to	1.00	Depth to cemented		Depth to cemented	1
		saturated zone		pan		pan	
	į	Depth to thick	1.00	Depth to	1.00	Depth to	1.00
		cemented pan		saturated zone		saturated zone	
		Seepage, bottom	1.00	Seepage	1.00	· -	1.00
	 	layer Too sandy	1.00	 		Seepage 	1.00
268C: Munising, calcareous substratum,	     	 		 	     	   	     
dissected	40	  Very limited		  Very limited	! 	  Very limited	
	į	Depth to	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		saturated zone		pan		pan	l
	 	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Frohling, calcareous substratum,	   	 	   	 	   	 	   
dissected	30	  Very limited		  Very limited	 	  Very limited	İ
	   	Depth to thick cemented pan	1.00		:	: -	1.00
Cookson, dissected	   20 	  Very limited   Depth to bedrock		  Very limited   Depth to bedrock	:	  Very limited   Depth to bedrock	    1.00
269E: Frohling, calcareous substratum,	       	Septim to Deditotk		Septim to bedrock	     	Septim to bedrock	     
dissected	50 	  Very limited   Depth to thick	1.00	  Very limited   Depth to cemented	:	  Very limited   Depth to cemented	  1.00
		cemented pan		pan		pan	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover for landfill	r
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
269E: Garlic, dissected	     20 	    Very limited   Seepage, bottom   layer	      1.00	    Very limited   Seepage   Slope	      1.00		      1.00
		Too sandy	1.00	-   	į Į	Slope	1.00
Cookson, dissected	   20   	  Very limited   Depth to bedrock   Slope	  1.00  1.00	  Very limited   Depth to bedrock   Slope	  -  1.00  1.00	  Very limited   Depth to bedrock   Slope	    1.00  1.00
272C: Munising, calcareous substratum,	     	 		 	     	 	     
dissected	40   	Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to cemented   pan	  1.00 	Very limited   Depth to cemented   pan	  1.00 
	   	Depth to thick   cemented pan 	1.00 	Depth to   saturated zone 	1.00   	Depth to   saturated zone 	1.00   
Yalmer, calcareous substratum,		   			 	 	
dissected	30   	Depth to saturated zone	1.00	Very limited   Depth to cemented   pan	į	Very limited   Depth to cemented   pan	į
	   	Depth to thick   cemented pan   Too sandy	1.00    0.50	Depth to   saturated zone   Seepage	1.00    1.00	saturated zone	1.00    1.00
Frohling, calcareous	   	 		 	   	Too sandy   	0.50   
substratum, dissected	   20   	  Very limited   Depth to thick   cemented pan	    1.00 	  Very limited   Depth to cemented   pan	    1.00 	  Very limited   Depth to cemented   pan	    1.00 
275B: Munising, calcareous					<u> </u> 		
substratum	50   	Very limited   Depth to   saturated zone	  1.00 	Very limited   Depth to cemented   pan	  1.00 	Very limited   Depth to cemented   pan	  1.00 
	   	Depth to thick cemented pan	1.00   	Depth to   saturated zone 	1.00   	Depth to   saturated zone 	1.00   
Cookson	40	Very limited   Depth to bedrock	1.00	Very limited   Depth to bedrock	:	  Very limited   Depth to bedrock	  1.00
281E: Mongo, dissected	95   	  Very limited   Slope   Too clayey	    1.00  0.50	  Very limited   Slope 	      1.00	:	      1.00  0.50
282B: Furlong	     50   	Depth to bedrock Seepage, bottom		  Very limited   Seepage   Depth to bedrock	      1.00  1.00	Seepage	      1.00
	   	layer   Too sandy 	1.00	   	   	Depth to bedrock   	1.00   

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo landfill	r
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
282B: Shingleton	   40     	  Very limited   Depth to bedrock   Seepage, bottom   layer		    Very limited   Depth to bedrock 		    Very limited   Depth to bedrock   	      1.00 
282D: Furlong	   50       	  Very limited   Depth to bedrock   Seepage, bottom   layer   Too sandy   Slope	1	  Very limited   Seepage   Depth to bedrock   Slope 	1.00	Depth to bedrock Seepage	    1.00  1.00  1.00  0.37
Shingleton	   40     	Very limited	  1.00  1.00    0.37	  Very limited   Depth to bedrock   Slope 		   Very limited   Depth to bedrock   Slope 	  1.00  0.37 
284B: Steuben	   40     	  Very limited   Depth to thick   cemented pan   Seepage, bottom   layer	    1.00    1.00	  Very limited   Depth to cemented   pan 		  Very limited   Depth to cemented   pan 	      1.00   
Blue Lake	   30   	  Very limited   Seepage, bottom   layer   Too sandy	  1.00    1.00	  Very limited   Seepage   	    1.00 	  Very limited   Too sandy   Seepage	    1.00  0.57
Kalkaska	   20   	  Very limited   Seepage, bottom   layer   Too sandy	  1.00    1.00	  Very limited   Seepage   	    1.00 	  Very limited   Too sandy   Seepage	    1.00  1.00
284D: Steuben	   40         	Very limited   Depth to thick   cemented pan   Seepage, bottom   layer   Slope	    1.00    1.00    0.37	  Very limited   Depth to cemented   pan   Slope	    1.00    0.37	Very limited Depth to cemented pan Slope	    1.00    0.37
Blue Lake	25       	   Very limited   Seepage, bottom   layer   Too sandy   Slope	  1.00    1.00  0.37	  Very limited   Seepage   Slope 	    1.00  0.37   	  Very limited   Too sandy   Seepage   Slope	  1.00  0.57  0.37
Kalkaska	25	   Very limited   Seepage, bottom   layer   Too sandy   Slope	  1.00    1.00  0.37	  Very limited   Seepage   Slope 	    1.00  0.37 	   Very limited   Too sandy   Seepage   Slope	  1.00  1.00  0.37

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	landfill	У	Area sanitary		Daily cover fo	r
	unit   	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
284E:	 	 	 	 	 	 	l I
Steuben	40	  Very limited	İ	  Very limited	i	  Very limited	
		Slope	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		Depth to thick	1.00	pan		pan	
	   	cemented pan Seepage, bottom layer	1.00	Slope   	1.00   	Slope   	1.00   
Blue Lake	   30	  Verv limited		  Very limited		  Very limited	 
Dide Lane	30	Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	İ	layer	į		į	Seepage	0.57
	ĺ	Too sandy	1.00				ĺ
Kalkaska	   20	  Very limited		  Very limited	 	  Very limited	 
		Slope	1.00	Slope	1.00	Slope	1.00
	İ	Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	ĺ	layer	ĺ		İ	Seepage	1.00
		Too sandy	1.00				
285B:	 			 		 	
Halfaday	50	Very limited	į	Very limited	į	Very limited	į
		Depth to	1.00	Depth to	1.00	Too sandy	1.00
		saturated zone		saturated zone		Seepage	1.00
		Seepage, bottom	1.00	Seepage	1.00	Depth to	0.86
	 	layer   Too sandy	1.00	 	 	saturated zone	l I
	İ				İ		İ
Kinross	40	_	1	Very limited	:	Very limited	
		Depth to	1.00		1.00	Depth to	1.00
	 	saturated zone	1.00	saturated zone	1.00	saturated zone Too sandy	1.00
	 	Seepage, bottom	1		1.00	Seepage	1.00
	 	Too sandy	1.00	ronging	1.00	Ponding	1.00
	İ	Ponding	1.00		İ		
286B:	 	 		 		 	
Greylock	50	  Not limited		  Not limited		  Not limited	
Cookson	40	  Very limited		  Very limited		  Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
287B:	 			 		 	 
McMaster	55	Very limited	į	Very limited	i	Very limited	İ
		Depth to	1.00	Depth to	1.00	Too sandy	1.00
		saturated zone		saturated zone		Seepage	1.00
		Seepage, bottom	1.00	Seepage	1.00	Gravel content	0.96
	 	layer Too sandy	1.00	 		Depth to saturated zone	0.86
	į	_	İ		į	İ	į
Davies	35	-	:	Very limited		Very limited	
	 	Depth to	1.00	Depth to	1.00	Depth to	1.00
	 	saturated zone Seepage, bottom	1.00	saturated zone Seepage	  1.00	saturated zone Too sandy	1.00
	! 	seepage, bottom		Seepage   Ponding	1.00	Seepage	1.00
	<u> </u>	Too sandy	1.00			Ponding	1.00
	İ	Ponding	1.00		i	Gravel content	0.25

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover fo	or
	<u> </u>	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
290A:		 	 	 	l I	 	
Namur, very stony	50	  Very limited   Depth to bedrock	1.00	  Very limited   Depth to bedrock		  Very limited   Depth to bedrock	1.00
Ruse, very stony	40	  Very limited   Depth to   saturated zone   Depth to bedrock	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	1.00	  Very limited   Depth to bedrock   Depth to   saturated zone	  1.00  1.00
	     	Seepage, bottom   layer   Ponding	1.00  1.00    1.00	Ponding	1.00	Ponding   Seepage	1.00
292B: Mashek, sandy	   	   	   	 		    -	   
substratum	90	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to   saturated zone	1.00
		Seepage, bottom   layer	1.00				
296D:		 		 		 	
Islandlake	55			Very limited	1	Very limited	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer   Too sandy	1.00	Slope	0.16	Seepage   Slope	1.00
		Slope	0.16			Blope	
McMillan	35	  Very limited		  Very limited		  Very limited	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		Slope	0.16	Seepage	1.00
		Too sandy Slope	0.16	 		Slope 	0.16
296E:				 		 	
Islandlake	55	Very limited	İ	  Very limited	į	  Very limited	İ
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer Too sandy	1.00			Seepage 	1.00
McMillan	35	  Very limited		  Very limited		  Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer   Too sandy	  1.00	 		Seepage 	1.00
297B:		[ ]		 		[ 	
Rubicon, severely				İ	i		İ
burned	95	  Very limited	į	  Very limited	i	  Very limited	i
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer   Too sandy	  1.00	 		Seepage 	1.00
297D:		-   		 		 	
Rubicon, severely		 		 	1	 	1
burned	95	  Very limited	İ	  Very limited	i	  Very limited	i
	i	Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		Slope	0.26	Seepage	1.00
		Too sandy	1.00	!	[	Slope	0.26
		Slope	0.26				1

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover for   landfill 	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
298B:		l		 		 	
Wurtsmith	55	  Very limited	İ	  Very limited	i	  Very limited	i
	j	Depth to	1.00	Depth to	1.00	Too sandy	1.00
		saturated zone		saturated zone		Seepage	1.00
		Seepage, bottom	1.00	Seepage	1.00	Depth to	0.86
		layer				saturated zone	
		Too sandy	1.00	 		 	
Deford	35	  Very limited		  Very limited	i	  Very limited	
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00
	j	saturated zone	į	saturated zone	į	saturated zone	į
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		Ponding	1.00	Seepage	1.00
		Too sandy	1.00			Ponding	1.00
		Ponding	1.00	 		 	
299F:		 		 	i	 	
Shelldrake	99	Very limited	į	Very limited	į	Very limited	į
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		Slope	1.00	Seepage	1.00
		Too sandy	1.00			Slope	1.00
	 	Slope	1.00	 		 	
300F:			İ				İ
Shelldrake	61	Very limited		Very limited		Very limited	
		Seepage, bottom	1.00		1.00	Too sandy	1.00
		layer		Slope	1.00	Seepage	1.00
		Too sandy Slope	1.00	 		Slope	1.00
		Slobe	1	 		 	
Dune land	38	  Not rated 	į i	  Not rated 	 	  Not rated 	į
301F:							İ
Cookson, dissected	55	Very limited		Very limited		Very limited	
		Slope	1.00		1.00	Slope	1.00
	 	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Nykanen, dissected	35	  Very limited		  Very limited		  Very limited	
		Depth to	1.00	Slope	1.00	Depth to bedrock	1.00
		saturated zone			1.00	Slope	1.00
		Slope	1.00	saturated zone		Depth to	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00 	saturated zone	
302B:			İ		i		
Dillingham	45	Very limited		Very limited		Very limited	
		Seepage, bottom	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		layer		pan		pan	
	 	Depth to thin	0.50	Seepage	1.00	Seepage	0.52
		cemented pan Too sandy	0.50	 		Too sandy	0.50
	İ		İ	İ	į	İ	į
Kalkaska	40		[	Very limited	:	Very limited	
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	 	layer	1 00	 		Seepage	1.00
	1	Too sandy	1.00	I	1	I	1

Table 13b.--Sanitary Facilities--Continued

and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover for landfill	r
		Rating class and limiting features	Value	Rating class and	Value	Rating class and	Value
302D:					 		
Dillingham	52   	Very limited   Seepage, bottom   layer	1.00	Very limited   Depth to cemented   pan		Very limited   Depth to cemented   pan	1.00
		Depth to thin	0.50	: - <del>-</del>	1.00	-	0.52
	! 	cemented pan			0.37		0.50
	İ	Too sandy	0.50	į -	į	Slope	0.37
		Slope	0.37		ĺ		İ
Valkagka	45	  Voru limited		  Voru limited	 	  Voru limited	
Kalkaska	4:5 	Seepage, bottom	1.00	Very limited   Seepage	1.00	Very limited   Too sandy	1.00
	 	layer	1	Slope	0.37	· -	1.00
	 	Too sandy	1.00	blobe	0.37		0.37
		Slope	0.37				
302E:	 	 		 	 	 	
Dillingham	50	  Very limited	İ	  Very limited	İ	  Very limited	İ
		Slope	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		Seepage, bottom	1.00	pan		pan	
		layer		Slope	1.00	Slope	1.00
		Depth to thin	0.50	Seepage	1.00		0.52
	 	cemented pan Too sandy	0.50		 	Too sandy	0.50
W. D	10	į	į	 	į	177 14464	į
Kalkaska	40	! <del>-</del>	1 00	Very limited	1.00	Very limited	1 00
	 	Slope Seepage, bottom	1.00	Slope   Seepage	1.00	-	1.00
	 	layer	1	Beepage	1		1.00
		Too sandy	1.00		į		
302F:	 			 	 		 
Dillingham	50	  Very limited	į	  Very limited	İ	  Very limited	İ
		Slope	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		Seepage, bottom	1.00	pan		pan	
		layer		: -	1.00		1.00
		Depth to thin	0.50	Seepage	1.00		0.52
	 	cemented pan Too sandy	0.50	 	 	Too sandy	0.50
		į					
Kalkaska	40	! <del>-</del>		Very limited		Very limited	
		Slope	1.00		1.00	· -	1.00
		Seepage, bottom	1.00	Seepage	1.00	· -	1.00
	 	layer   Too sandy	1.00		 	Seepage 	1.00
202D -	 	-   	į	  -	į	  -	į
303B: Kiva	   66	  Vorus limited		  Very limited	 	  Very limited	l I
KIVA	33		1.00		1.00		1.00
	 	layer	1	beepage	1	· -	1.00
		Too sandy	1.00			 	
Trenary	30	  Not limited		  Not limited	 	  Not limited	 
					ļ		ļ
303D:	   <b> </b>	 		 		 	
Kiva	55 			Very limited		Very limited	1 00
	I	Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	I	laver	1	Slope	0 16	Seenage	1 00
	 	layer Too sandy	  1.00	Slope	0.16 		1.00  0.16

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	Trench sanitar   landfill	У	Area sanitary   landfill 		Daily cover for landfill	r
	unit			İ			
	 	Rating class and limiting features	Value 	Rating class and limiting features	Value 	Rating class and   limiting features	Value 
303D: Trenary	   30 	  Somewhat limited   Slope	    0.16	  Somewhat limited   Slope	    0.16	  Somewhat limited   Slope	    0.16
303E:	 	 	 	 	 	 	 
Kiva	   55 	  Very limited   Slope	1.00	  Very limited   Slope	    1.00	  Very limited   Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
	İ	layer	į	j	j	Seepage	1.00
		Too sandy	1.00				
Trenary	   30	  Very limited		  Very limited	 	  Very limited	
iiemaiy	30	Slope	1.00	-	1.00	_	1.00
	İ						
305B:				[			
Wurtsmith	55	_		Very limited		Very limited	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	-	1.00
	 	Seepage, bottom	1.00	!	1.00	Seepage Depth to	0.86
		layer				saturated zone	
	į	Too sandy	1.00	İ	j		į
1							
Meehan	40	Very limited   Depth to	1.00	Very limited   Depth to	  1.00	Very limited   Depth to	1.00
	 	saturated zone	1	saturated zone	<b>1.</b> 00	saturated zone	1.00
	İ	Seepage, bottom	1.00	!	1.00	Too sandy	1.00
		layer		!		Seepage	1.00
	 	Too sandy	1.00	 	 	 	
306C:				 	 	 	
Deerton, dissected	35	Very limited	į	Very limited	İ	Very limited	į
		Depth to bedrock	:	Seepage	1.00	Too sandy	1.00
		Seepage, bottom	1.00	Depth to bedrock	1.00	Seepage	1.00
	 	layer   Too sandy	1.00	 	 	Depth to bedrock	1.00
							İ
Tokiahok, dissected	30			Very limited	:	Very limited	
	 	Depth to thick	1.00	Depth to cemented	1.00	Depth to cemented	1.00
	 	cemented pan Too sandy	0.50	pan   Seepage	1.00	pan   Seepage	1.00
		Slope	0.16		0.16	Too sandy	0.50
	į		į		ĺ	Slope	0.16
Tooks discosted		 	l I	  Vom: limited	 	 	
Jeske, dissected	20	Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to bedrock	1 . 00
		saturated zone		saturated zone		Depth to	1.00
	İ	Depth to bedrock	1.00	Seepage	1.00	saturated zone	i
		Seepage, bottom	1.00	Depth to bedrock	1.00	Too sandy	1.00
	 	layer   Too sandy	  1.00	 	 	Seepage	1.00
		100 sandy		 	 	[ 	
307B:	į		į	į	İ		į
Rubicon, very deep water table	   95	  Very limited	 	  Very limited	 	  Very limited	1
water capie	23 	Very limited   Seepage, bottom	1.00	Very limited   Seepage	1.00	Very limited   Too sandy	1.00
		layer				Seepage	1.00
	I	Too sandy	1.00	I	I	I	I

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary landfill		Daily cover fo	or
		Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
307D: Rubicon, very deep		   	   	 	   	   	   
water table	95	Very limited   Seepage, bottom   layer   Too sandy   Slope	  1.00    1.00  0.37	Very limited   Seepage   Slope 	  1.00  0.37 	Very limited   Too sandy   Seepage   Slope	  1.00  1.00  0.37
308B: Rubicon	     55   	  Very limited   Seepage, bottom   layer   Too sandy	      1.00    1.00	  Very limited   Seepage   	      1.00 	  Very limited   Too sandy   Seepage	    1.00  1.00
Sultz	   40 	  Very limited   Too sandy 	    1.00	  Very limited   Seepage 	    1.00	  Very limited   Too sandy   Seepage	  1.00  1.00
308D: Rubicon	   55     	  Very limited   Seepage, bottom   layer   Too sandy   Slope	    1.00    1.00  0.37	  Very limited   Seepage   Slope 	    1.00  0.37	  Very limited   Too sandy   Seepage   Slope	    1.00  1.00  0.37
Sultz	   40   	  Very limited   Too sandy   Slope 	  1.00  0.37		  1.00  0.37	  Very limited   Too sandy   Seepage   Slope	  1.00  1.00  0.37
309B: Rubicon, deep water	   	 		 	   	 	 
table	95         	Very limited    Depth to   saturated zone   Seepage, bottom   layer   Too sandy	  1.00    1.00 	Very limited   Depth to   saturated zone   Seepage	  1.00    1.00 	Very limited   Too sandy   Seepage 	  1.00  1.00 
309D: Rubicon, deep water	   	 		 	   	 	   
table	95           	Very limited	  1.00    1.00    1.00  0.37	Very limited   Depth to   saturated zone   Seepage   Slope	  1.00    1.00  0.37	Very limited   Too sandy   Seepage   Slope  -	  1.00  1.00  0.37 
310B: Kalkaska, burned	   90     	  Very limited   Seepage, bottom   layer   Too sandy	    1.00    1.00	  Very limited   Seepage   	    1.00 	  Very limited   Too sandy   Seepage	  1.00  1.00

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar	У	Area sanitary   landfill		Daily cover for landfill	
	   	Rating class and limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
310D: Kalkaska, burned	   95       	   Very limited   Seepage, bottom   layer   Too sandy   Slope	    1.00    1.00  0.37	  Very limited   Seepage   Slope 	      1.00  0.37	  Very limited   Too sandy   Seepage   Slope	  1.00  1.00  0.37
310E: Kalkaska, burned	   95       	  Very limited   Slope   Seepage, bottom   layer   Too sandy	    1.00  1.00    1.00	  Very limited   Slope   Seepage 	    1.00  1.00	  Very limited   Slope   Too sandy   Seepage	  1.00  1.00  1.00
311B: Kalkaska, very deep water table, burned	     95   	    Very limited   Seepage, bottom   layer   Too sandy	      1.00    1.00	      Very limited   Seepage   	        1.00	  -  Very limited   Too sandy   Seepage	      1.00  1.00
311D: Kalkaska, very deep water table, burned	     95     	  Very limited   Seepage, bottom   layer   Too sandy   Slope	      1.00    1.00	  -  Very limited   Seepage   Slope  -	      1.00  0.37	  -  Very limited   Too sandy   Seepage   Slope	    1.00  1.00  0.37
312B: Islandlake, burned	     95     	  Very limited   Seepage, bottom   layer   Too sandy	1.00	  Very limited   Seepage   	      1.00	  Very limited   Too sandy   Seepage	    1.00  1.00
312D: Islandlake, burned	   95       	  Very limited   Seepage, bottom   layer   Too sandy   Slope	    1.00    1.00  0.16	  Very limited   Seepage   Slope 	    1.00  0.16	  Very limited   Too sandy   Seepage   Slope	  1.00  1.00  0.16
313B: Kalkaska, deep water table, burned	1	  Very limited   Seepage, bottom   layer   Too sandy	      1.00    1.00	    Very limited   Seepage   	        1.00	  Very limited   Too sandy   Seepage	      1.00  1.00
314B: Blue Lake, very deep water table, burned	1	  Very limited   Seepage, bottom   layer   Too sandy	      1.00    1.00	    Very limited   Seepage   	        1.00	    Very limited   Too sandy   Seepage	    1.00  0.57

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover for landfill	r
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
315B: Blue Lake, deep water table, burned	     95       	   Very limited   Depth to   saturated zone   Seepage, bottom   layer   Too sandy	      1.00    1.00	  Very limited   Depth to   saturated zone   Seepage	      1.00    1.00	  Very limited   Too sandy   Seepage 	    1.00  0.57
316B: Blue Lake, burned	   95     	  Very limited   Seepage, bottom   layer   Too sandy	  1.00    1.00	  Very limited   Seepage 	    1.00 	  Very limited   Too sandy   Seepage	  1.00  0.57
316D: Blue Lake, burned	   95       	   Very limited   Seepage, bottom   layer   Too sandy   Slope	 	  Very limited   Seepage   Slope 	    1.00  0.37	  Very limited   Too sandy   Seepage   Slope	  1.00  0.57  0.37
317B: Kalkaska, very deep water table	     95   	    Very limited   Seepage, bottom   layer   Too sandy	      1.00    1.00	      Very limited   Seepage   	        1.00	  -  Very limited   Too sandy   Seepage	      1.00  1.00
317D: Kalkaska, very deep water table	       95     	 	      1.00    1.00	  -  Very limited   Seepage   Slope 	      1.00  0.37	 	    1.00  1.00  0.37
318B: Islandlake, very deep water table	     95     	  Very limited   Seepage, bottom   layer   Too sandy	      1.00    1.00	    Very limited   Seepage   	        1.00	  -  Very limited   Too sandy   Seepage 	      1.00  1.00
318D: Islandlake, very deep water table	95   95     	  Very limited   Seepage, bottom   layer   Too sandy   Slope	    1.00    1.00  0.16	  Very limited   Seepage   Slope 	    1.00  0.16   	  Very limited   Too sandy   Seepage   Slope	  1.00  1.00  0.16
319B: Islandlake	95 95	  Very limited   Seepage, bottom   layer   Too sandy	1.00	  Very limited   Seepage 	    1.00 	  Very limited   Too sandy   Seepage	  1.00  1.00

Table 13b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 		Daily cover for landfill	or
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
319D:				 		 	
Islandlake	95	Very limited	į	Very limited	į	Very limited	İ
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		Slope	0.16	Seepage	1.00
		Too sandy	1.00			Slope	0.16
		Slope	0.16	 		 	
319E:	 	 		 		 	1
Islandlake	95	  Very limited		  Very limited	i	  Very limited	i
	İ	Slope	1.00	Slope	1.00	Slope	1.00
	İ	Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer				Seepage	1.00
		Too sandy	1.00	!	!	!	!
319F:							
Islandlake	   95	  Very limited		  Very limited		  Very limited	-
ISIANGIARE	33	Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer				Seepage	1.00
	İ	Too sandy	1.00	j	į	j	į
					[		1
320B:					!		!
Kalkaska, deep water table							
table	95	Depth to	1.00	Very limited   Depth to	1.00	Very limited   Too sandy	1.00
	 	saturated zone	1	saturated zone	1	Seepage	1.00
		Seepage, bottom	1.00	Seepage	1.00	Soopuge	
	į	layer	İ	j	į	į	į
		Too sandy	1.00	[	[	[	1
2015							
321B: Kalkaska	50	  Vorus limited		  Very limited		  Very limited	-
Rainabka	30	Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		Doopugo		Seepage	1.00
	İ	Too sandy	1.00	İ	i		i
Deerton	45	! <del>-</del>	:	Very limited		Very limited	!
		Depth to bedrock	:	Seepage	1.00	Too sandy	1.00
		Seepage, bottom	1.00	Depth to bedrock	1.00	Seepage Depth to bedrock	1.00
		Too sandy	1.00	 		Depth to bedrock	1
	İ				İ		i
321D:	İ		İ	İ	Ì	İ	İ
Kalkaska	50			Very limited	[	Very limited	1
		Seepage, bottom	1.00	Seepage	1.00	Too sandy	1.00
		layer		Slope	0.37	Seepage	1.00
	 	Too sandy Slope	1.00	 	1	Slope	0.37
					İ		
Deerton	45	  Very limited	i	  Very limited	i	  Very limited	i
		Depth to bedrock		Seepage	1.00	Too sandy	1.00
		Seepage, bottom	1.00	Depth to bedrock		Seepage	1.00
		layer		Slope	0.37	Depth to bedrock	
		Too sandy	1.00			Slope	0.37
		Slope	0.37	1	1	1	1

### Table 14a.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map symbol	Pct.	!	urce	Potential as source			
and soil name	of	:		of sand			
	map	:					
	unit	! <del></del>	1	<u> </u>	1		
	<u> </u>	Rating class	Value	Rating class	Value		
10:		 		 			
Beaches	100	  Not rated 	İ	  Not rated 	İ		
11C:	i		i		j		
Deer Park	90	Poor		Fair			
	   	Bottom layer Thickest layer	0.00	Bottom layer Thickest layer	0.91		
11E:		 		 			
Deer Park	95	Poor	j	Fair	j		
		Bottom layer	0.00	· -	0.91		
		Thickest layer	0.00	Thickest layer	0.91		
11F:					İ		
Deer Park	98	Poor		Fair			
		Bottom layer	:	Bottom layer	0.91		
		Thickest layer	0.00	Thickest layer	0.91		
12B:					İ		
Rubicon	90	Poor		Fair			
		Bottom layer	0.00		0.82		
		Thickest layer	0.00	Thickest layer	0.82		
12D:			İ				
Rubicon	95	Poor		Fair			
		Bottom layer	:	Bottom layer	0.82		
		Thickest layer	0.00	Thickest layer 	0.82		
12E:	İ		i		İ		
Rubicon	95	Poor		Fair			
		Bottom layer	0.00	· -	0.82		
		Thickest layer 	0.00	Thickest layer 	0.82		
13B:	į		į		į		
Kalkaska	94	1		Fair			
		Bottom layer	0.00	· -	0.64		
		Thickest layer	0.00	Thickest layer 	0.64		
13D:			į	<u> </u>	į		
Kalkaska	96	Poor		Fair			
		Bottom layer	0.00	Bottom layer Thickest layer	0.64		
		Thickest layer 		Inickest layer	0.64		
13E:			į		į		
Kalkaska	100	!		Fair	10.51		
		Bottom layer	0.00	· -	0.64		
		Thickest layer 	0.00	Thickest layer 	0.64		
15A:			į		į		
Croswell	92	Poor		Fair	10.51		
		Bottom layer	0.00	· -	0.64		
		Thickest layer	0.00	Thickest layer	0.64		

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	of gravel	urce	Potential as so of sand	ource
	unit 	Rating class	Value	Rating class	Value
16A: Paquin	     90   	  Poor   Bottom layer   Thickest layer	0.00	    Fair   Thickest layer   Bottom layer	0.00
17A: Au Gres	     92   	  Poor   Bottom layer   Thickest layer	0.00	  Fair   Bottom layer   Thickest layer	0.64
18: Kinross	     92   	  Poor   Bottom layer   Thickest layer	0.00	  Fair   Thickest layer   Bottom layer	0.37
19: Deford	     92   	  Poor   Bottom layer   Thickest layer	0.00	  Fair   Thickest layer   Bottom layer	0.00
21A: Ingalls	     90 	  Poor   Bottom layer   Thickest layer	    0.00  0.00	  Fair   Bottom layer   Thickest layer	    0.00  0.72
24B: Munising	     90 	  Poor   Bottom layer   Thickest layer	0.00	  Fair   Thickest layer   Bottom layer	    0.00  0.01
25B: Munising	     55   	    Poor   Bottom layer   Thickest layer	    0.00  0.00	    Fair   Thickest layer   Bottom layer	    0.00  0.01
Yalmer	   30   	  Fair   Thickest layer   Bottom layer 	  0.00  0.15	  Fair   Bottom layer   Thickest layer 	  0.00  0.04
25D: Munising	   55   	  Poor   Bottom layer   Thickest layer	0.00	  Fair   Thickest layer   Bottom layer	0.00
Yalmer	   30   	  Fair   Thickest layer   Bottom layer 	  0.00  0.15	  Fair   Bottom layer   Thickest layer 	  0.00  0.04
31D: Trenary	   85 	  Poor   Thickest layer   Bottom layer	0.00	  Fair   Thickest layer   Bottom layer	0.00
33: Ensley	     90 	    Fair   Thickest layer   Bottom layer	    0.00  0.64	    Poor   Bottom layer   Thickest layer	    0.00  0.00

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct.	Potential as so of gravel	urce	Potential as so of sand	urce
	map  unit	 		 	
		Rating class	Value	Rating class	Value
35B:	 	 		 	
Munising, calcareous			i		i
substratum	40	Fair	İ	Poor	ĺ
		Thickest layer	0.00	Bottom layer	0.00
	 	Bottom layer	0.15	Thickest layer	0.00
Yalmer, calcareous		 		 	
substratum	30	Fair		Poor	
		Thickest layer	0.00	<u>-</u>	0.00
	 	Bottom layer	0.69	Thickest layer	0.00
Frohling, calcareous					i
substratum	20	Fair		Poor	
		Thickest layer	0.00		0.00
	 	Bottom layer	0.60	Bottom layer	0.00
37B:	į		į		į
Grand Sable	90	Poor		Fair	
		Bottom layer	0.00		0.03
	 	Thickest layer 	0.00	Bottom layer	0.91
37E:	į		į		į
Grand Sable	98	Poor	!	Fair	
	 	Bottom layer   Thickest layer	0.00	-	0.03
		Inickest layer		Boccom Tayer	
38B:					-
Rhody	60	Fair   Thickest layer	0.00	Fair   Thickest layer	0.00
		Bottom layer	0.64	Bottom layer	0.91
_					-
Towes	30	Poor   Bottom layer	0.00	Poor   Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
					į
40B: Waiska, very stony	   90	  Fair		  Fair	
	İ	Thickest layer	0.83	Bottom layer	0.64
		Bottom layer	0.90	Thickest layer	0.64
42:	 	 			
Davies	90	Poor	i	Poor	i
		Bottom layer	0.00	Thickest layer	0.00
	 	Thickest layer	0.00	Bottom layer	0.00
46:		 			
Jacobsville, very	ĺ		İ		į
stony	90	!		Fair	
		Bottom layer	0.00	Bottom layer	0.03
	 	Thickest layer 	0.00	Thickest layer	0.03
47C:			į		į
Deerton	55	Poor		Fair	
	 	Thickest layer Bottom layer	0.00	Thickest layer Bottom layer	0.13
		Doccom rayer		Doccom rayer	
Au Train	30	Poor	İ	Fair	i
		Bottom layer	0.00	Thickest layer	0.00
	I	Thickest layer	0.00	Bottom layer	0.66

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of	Potential as so of gravel	urce	Potential as so of sand	urce
	map  unit	 		 	
		Rating class	Value	Rating class	Value
47E:	 	 		l I	
Deerton	55	Poor		  Fair	
	į	Thickest layer	0.00	Thickest layer	0.13
		Bottom layer	0.00	Bottom layer	0.42
Au Train	   30	  Poor		  Fair	l I
	İ	Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.66
18:	 			 	
Burt	90	Poor	į	Fair	į
		Thickest layer	0.00	:	0.07
	 	Bottom layer 	0.00	Bottom layer 	0.86
19B:		 	į		į
Cookson	90 	Poor   Thickest layer	0.00	Poor   Bottom layer	0.00
		Bottom layer	0.00	· -	0.00
51: Nahma	   50	  Poor		  Not rated	l I
		Bottom layer	0.00	Bottom layer	0.00
	į	Thickest layer	0.00	<u> </u>	į
Ruse	40	  Poor		  Fair	
	į	Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
52B:					į
Summerville	85	Poor		Poor	
	 	Thickest layer Bottom layer	0.00	Bottom layer Thickest layer	0.00
	į		į	-	į
57: Carbondale	30	  Poor		  Poor	l I
	İ	Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lupton	30	  Poor		  Poor	
		Bottom layer	0.00	Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer	0.00
Tawas	30	Poor	i	  Fair	İ
		Bottom layer	0.00	:	0.00
	 	Thickest layer 	0.00	Bottom layer	0.91
58:					į
Dawson	30	Poor		Fair	
	 	Bottom layer   Thickest layer	0.00	Thickest layer Bottom layer	0.00
Greenwood	30	Poor		Poor	
GTEGHMOOG	30	Poor   Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Loxley	   30	  Poor		  Poor	
			1		1
2011207	İ	Bottom layer	0.00	Bottom layer	0.00

Table 14a.--Construction Materials--Continued

	Pct. of		urce	Potential as source of sand	
	map			l	
	unit 	Rating class	Value	Rating class	Value
	İ	ĺ	į		İ
59: Chippeny		Poor		  Poor	
Chippeny	55	Bottom layer	0.00	!	0.00
		Thickest layer	0.00	Thickest layer	0.00
Nahma	   30	  Poor		  Not rated	
	į	Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	 	
60:					
Histosols	50			Poor	
	 	Bottom layer   Thickest layer	0.00	Bottom layer Thickest layer	0.00
		Inickest layer		Interest layer	
Aquents	50	Not rated		Not rated	
61:					į
Pits	100 	Not rated 		Not rated 	
62F:			į		į
Udipsamments	50 	Not rated		Not rated 	l I
Udorthents	50	Not rated		Not rated	İ
64B:		 		 	
Kiva	90	Fair		Fair	
	 	Thickest layer Bottom layer	0.00	:	0.00
64D:	į	-    -	į	-   	į
Kiva	   90	  Fair		  Fair	
		Thickest layer	0.00	!	0.00
		Bottom layer	0.57	Bottom layer	0.57
65D:					ļ
Jeske, bedrock	   4E	  Poor		  Fair	
terrace	4:5	Bottom layer	0.00	!	0.21
	į	Thickest layer		Bottom layer	0.52
Gongeau, bedrock	 	 		 	
terrace	25	!		Fair	
		Bottom layer   Thickest layer	0.00	:	0.00
		Inickest layer		Boccom Tayer	
Deerton, bedrock terrace	20	Poor		  Fair	
5512455	-0	Thickest layer	0.00	!	0.13
		Bottom layer	0.00	:	0.42
65F:		 		 	
Jeske, bedrock					
terrace	45 	Poor   Bottom layer	0.00	Fair   Thickest layer	0.21
		Thickest layer	0.00	:	0.21
Gongeau, bedrock		 		 	
terrace	25	Poor	İ	  Fair	i
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.52

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of	of gravel	rce	Potential as source of sand		
	unit		1		1	
	<u> </u> 	Rating class	Value	Rating class	Value	
65F: Deerton, bedrock terrace	       20 	    Poor   Thickest layer   Bottom layer	      0.00	    Fair   Thickest layer   Bottom layer	0.13	
		BOCCOM Tayer		Boccom Tayer	0.42	
66D: Ruse, bedrock terrace	     40 	    Poor   Bottom layer	      0.00	    Poor   Bottom layer	      0.00	
	į	Thickest layer	0.00	Thickest layer	0.00	
Ensign, bedrock	     30 	  Poor   Bottom layer   Thickest layer	    0.00  0.00	    Poor   Bottom layer   Thickest layer	    0.00  0.00	
Nykanen, bedrock terrace	     20 	  Poor   Thickest layer   Bottom layer	    0.00  0.00	  Poor   Bottom layer   Thickest layer	    0.00  0.00	
66F:	 	 		 		
Ruse, bedrock terrace	   40 	  Poor   Bottom layer   Thickest layer	0.00	  Poor   Bottom layer   Thickest layer	  0.00  0.00	
Ensign, bedrock terrace	     30 	  Poor   Bottom layer   Thickest layer	    0.00  0.00	  Poor   Bottom layer   Thickest layer	0.00	
Nykanen, bedrock terrace	     20 	  Poor   Thickest layer   Bottom layer	    0.00  0.00	  Poor   Bottom layer   Thickest layer	0.00	
68: Pits, quarry	    100	    Not rated 		    Not rated 		
69B: Escanaba	     85   	  Fair   Thickest layer   Bottom layer	0.00	  Fair   Bottom layer   Thickest layer	0.00	
71A: Evart	     70 	    Poor   Thickest layer   Bottom layer	    0.00  0.00	    Fair   Thickest layer   Bottom layer	    0.00  0.95	
Sturgeon	   20   	  Poor   Bottom layer   Thickest layer	  0.00  0.00	  Fair   Thickest layer   Bottom layer	  0.00  0.43	

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of	Potential as so of gravel	urce	Potential as so of sand	urce
	map  unit				
	<u> </u>	Rating class	Value	Rating class	Value
72E:	 	 			
Deerton, dissected	40	Poor	į	Fair	j
		Thickest layer	0.00	Thickest layer	0.13
	 	Bottom layer	0.00	Bottom layer	0.42
Tokiahok, dissected	30	Poor		  Fair	
		Thickest layer	0.00	Thickest layer	0.00
	 	Bottom layer	0.00	Bottom layer	0.03
Trout Bay, dissected	15	Poor		  Poor	
		Bottom layer	0.00	Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer	0.00
72F:					
Deerton, dissected	40	•		Fair	
		Thickest layer	0.00		0.13
	 	Bottom layer	0.00	Bottom layer	0.42
Tokiahok, dissected	25	Poor	i	Fair	i
	İ	Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
Trout Bay, dissected	20	  Poor		  Poor	
		Bottom layer	0.00	Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer	0.00
76C:					İ
Garlic, dissected	40	!	!	Fair	
	 	Bottom layer	0.00	· -	0.91
	 	Thickest layer 	0.00	Thickest layer 	0.91
Blue Lake, dissected	30	Poor	İ	Fair	ĺ
		Bottom layer	0.00	· -	0.08
	 	Thickest layer	0.00	Thickest layer	0.08
Voelker, dissected	20	Poor		Poor	i
		Bottom layer	0.00	Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer	0.00
76E:					
Garlic, dissected	40	!		Fair	
		Bottom layer	0.00	-	0.91
	 	Thickest layer 	0.00	Thickest layer 	0.91
Blue Lake, dissected	30	Poor	İ	Fair	ĺ
		Bottom layer	0.00	· -	0.08
	 	Thickest layer	0.00	Thickest layer 	0.08
Voelker, dissected	20	!	į	Poor	į
		Bottom layer	0.00	Bottom layer	0.00
	 	Thickest layer 	0.00	Thickest layer 	0.00
76F:		<u></u>	į		į
Garlic, dissected	40	!		Fair	10.01
	 	Bottom layer	0.00	Bottom layer	0.91
	!	Thickest layer	0.00	Thickest layer	0.91

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
76F:		 		 	
Blue Lake, dissected	30	Poor		  Fair	
		Bottom layer   Thickest layer	0.00	· -	0.08
Voelker, dissected	20	  Poor		  Poor	
	 	Bottom layer Thickest layer	0.00	-	0.00
77B:	 	 		 	
Garlic	40	Poor		Fair	
	 	Bottom layer   Thickest layer	:	Bottom layer   Thickest layer	0.91  0.91
Blue Lake		  Poor		  Fair	
Dide Dake	30	Bottom layer		Bottom layer	0.08
	į	Thickest layer		Thickest layer	0.08
   Voelker  	20	  Poor		  Poor	
	į	Bottom layer	0.00	Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer 	0.00
77D:					į
Garlic 4	40	Poor   Bottom layer	!	Fair   Bottom layer	0.91
		Thickest layer		Thickest layer	0.91
Blue Lake	   30	  Poor		  Fair	
	į	Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer 	0.08
Voelker	20	Poor	j	Poor	j
		Bottom layer	0.00	· -	0.00
	 	Thickest layer 	0.00	Thickest layer 	0.00
77E: Garlic		  Poor		  Fair	
Gallic	40	Bottom layer	0.00	!	0.91
	į	Thickest layer	0.00	Thickest layer	0.91
Blue Lake	30	  Poor		  Fair	
		Bottom layer	0.00	Bottom layer	0.08
	 	Thickest layer	0.00	Thickest layer	0.08
Voelker	20	Poor		Poor	į
	 	Bottom layer Thickest layer	0.00		0.00
		Inickest layer 	0.00	Thickest layer 	0.00
88: Cathro	   55	  Fair		  Poor	
		Thickest layer	0.00		0.00
	 	Bottom layer	0.15	· -	0.00
Ensley	35	  Fair		  Poor	
		Thickest layer	0.00	-	0.00
		Bottom layer	0.64	Thickest layer	0.00

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct.   of  map			Potential as source of sand	
	unit 	   Rating class	Value	Rating class	Value
	İ	İ	i	İ	i
93:					
Tawas	70	Poor   Bottom layer	0.00	Fair   Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.91
Deford	20	  Poor		  Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer 	0.00	Bottom layer 	0.25
95B:	İ				į
Liminga	90	Poor		Fair	
		Bottom layer   Thickest layer	0.00	· -	0.45
		Inickest layer		Inickest layer	
104C: Fence, dissected	90	  Poor		  Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer 	0.00
109D:		l Danie		    Fair	į
Rousseau	50	Poor   Bottom layer	0.00	rair   Thickest layer	0.25
		Thickest layer	0.00	Bottom layer	0.64
Dawson	45	  Poor		  Fair	
		Bottom layer	0.00	:	0.00
		Thickest layer 	0.00	Bottom layer 	0.25
109F:		Poor	į	 	į
Rousseau	55	Bottom layer	0.00	Fair   Thickest layer	0.25
		Thickest layer	0.00	Bottom layer	0.64
Dawson	40	  Poor		  Fair	
	į	Bottom layer	0.00	Thickest layer	0.00
	 	Thickest layer	0.00	Bottom layer	0.25
125B:					į
Stutts	65	Poor   Bottom layer	0.00	Fair   Thickest layer	0.01
		Thickest layer	0.00	Bottom layer	0.91
Kalkaska	35	Poor		  Fair	
		Bottom layer	0.00	•	0.82
	İ	Thickest layer	0.00		0.82
125D:					
Stutts	65	!		Fair	
		Bottom layer Thickest layer	0.00	:	0.01
Kalkaska	25	Poor		  Fair	l I
		Bottom layer	0.00	Bottom layer	0.82
	į	Thickest layer	0.00	Thickest layer	0.82
125E:					
Stutts	55	Poor		Fair	
	 	Bottom layer Thickest layer	0.00	Thickest layer Bottom layer	0.01
	1	Interest tayer	10.00	Doccom rayer	10.91

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	of of gravel		Potential as source of sand		
	unit	Rating class	Value	Rating class	Value	
	İ		1			
125E: Kalkaska	   45	  Poor		  Fair		
		Bottom layer	0.00	Bottom layer	0.82	
	 	Thickest layer	0.00	Thickest layer	0.82	
135B:						
Munising, calcareous					ļ	
substratum	65	Fair		Poor		
	 	Thickest layer Bottom layer	0.00  0.15	<u>-</u>	0.00	
	į		į	_	į	
Ensley	25	Fair		Poor		
	 	Thickest layer	0.00	<u>-</u>	0.00	
	 	Bottom layer	0.64	Thickest layer 	0.00	
145C:	į		į		į	
Munising, dissected, very stony		Poor		  Fair		
very scony	30	Bottom layer	0.00	!	0.00	
		Thickest layer	0.00	Bottom layer	0.01	
	İ	j	j	i -	į	
Yalmer, dissected,						
very stony	35	!	0.00	Fair	0.00	
	 	Thickest layer Bottom layer	0.15	<u>-</u>	0.04	
	İ	į	j	·	į	
146B: Munising, stony		   Doom		  Fair		
munising, stony	60	Bottom layer	0.00		0.00	
		Thickest layer	0.00	-	0.01	
G1		   Document				
Skanee, stony	30	Poor   Bottom layer	0.00	Fair   Thickest layer	0.00	
		Thickest layer	0.00	-	0.01	
	ĺ				İ	
147A: Skanee, very stony	   66	Poor		  Fair		
Skanee, very scony	33	Bottom layer	0.00		0.00	
		Thickest layer	0.00	-	0.01	
					Ţ	
Gay, very stony	35	!		Fair		
	 	Bottom layer Thickest layer	0.00	Bottom layer Thickest layer	0.03	
		Inickest layer		Inickest layer		
148B:	ĺ		į		į	
Shoepac	70	Fair		Poor		
	 	Thickest layer Bottom layer	0.00	Bottom layer   Thickest layer	0.00	
Ensley	20	Fair		Poor	Ţ	
		Thickest layer	0.00	<u>-</u>	0.00	
	 	Bottom layer	0.64	Thickest layer	0.00	
155A:						
Zeba, very stony	55	Poor	į	Fair	į	
		Bottom layer	0.00	Bottom layer	0.03	
	1	Thickest layer	0.00	Thickest layer	0.03	

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	of of gravel		Potential as so of sand	ource
	unit 	Rating class	Value	Rating class	Value
155A: Jacobsville, very stony	       30 	      Poor   Bottom layer	0.00	       Fair   Bottom layer	      0.03
	 	Thickest layer	0.00	Thickest layer	0.03
157B: Reade	   45 	  Fair   Thickest layer   Bottom layer	  0.00  0.15	Poor   Thickest layer   Bottom layer	0.00
Nahma	   40   	  Poor   Bottom layer   Thickest layer	0.00	  Not rated   	
158C: Munising, dissected,	   	 		 	
stony		  Poor   Bottom layer   Thickest layer	0.00	-	0.00
Abbaye, dissected, stony	     35   	  Poor   Bottom layer   Thickest layer	0.00	-	  0.01  0.04
160B: Paquin	     55   	  Poor   Bottom layer   Thickest layer	0.00	· -	    0.00  0.95
Finch	   45 	  Poor   Bottom layer   Thickest layer	0.00	· -	  0.00  0.43
161B: Yellowdog, stony	     50 	  Poor   Bottom layer   Thickest layer	    0.00  0.00	· -	    0.00  0.00
Buckroe, stony	   40   	  Fair   Thickest layer   Bottom layer	  0.00  0.71	  Fair   Thickest layer   Bottom layer	  0.00  0.71
165B: Chocolay, very stony	     55 	  Fair   Thickest layer   Bottom layer	0.04	_	0.02
Waiska, very stony	   30   	  Fair   Thickest layer   Bottom layer 	0.83	  Fair   Bottom layer   Thickest layer 	  0.64  0.64
166: Skandia	     85   	  Poor   Bottom layer   Thickest layer	0.00	-	0.00

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct.	!	urce	Potential as so of sand	ource
	map  unit	 		 	
		Rating class	Value	Rating class	Value
167:	 				l I
Skandia, stony	55	Poor	į	Poor	j
	 	Bottom layer   Thickest layer	0.00	· -	0.00
Tagabawilla stanu		   Deem		  Fair	
Jacobsville, stony	33	Bottom layer	0.00		0.03
	   	Thickest layer	0.00	· -	0.03
170B:	 	 		 	
Chocolay, very stony	90	:		Fair	
		Thickest layer	0.04	· -	0.02
	 	Bottom layer 	0.29 	Thickest layer 	0.02
171B: Paavola, very stony	   90	  Fair		  Fair	l I
	İ	Thickest layer	0.09	Bottom layer	0.00
	 	Bottom layer	0.64	Thickest layer	0.09
172D:					į
Buckroe, very bouldery	   70	  Fair	l I	  Fair	
Douldery	,0	Thickest layer	0.00	!	0.00
		Bottom layer	0.71		0.71
Rock outcrop	15	  Not rated		  Not rated	
172F:	 			 	
Buckroe, very		[	-		
bouldery	70	!		Fair	
	 	Thickest layer Bottom layer	0.00  0.71	· -	0.00
		Boccom Tayer		Boccom Tayer	
Rock outcrop	15 	Not rated 		Not rated 	l I
176B: Croswell	   50	Poor	į	    Fair	į
CIOSWEII	30	Bottom layer	0.00		0.64
		Thickest layer	0.00	· -	0.64
Kinross	40	  Poor		  Fair	
	ĺ	Bottom layer	0.00	Thickest layer	0.37
	 	Thickest layer	0.00	Bottom layer	0.95
181E:	į		į		į
Frohling, dissected,					-
stony	60 	Poor   Thickest layer	0.00	Fair   Thickest layer	0.00
		Bottom layer	0.00	-	0.01
Tokiahok, dissected,	 	 		 	
stony	30	Poor		Fair	
	 	Thickest layer   Bottom layer	0.00	-	0.00
		Joseph Tayer		Sociom Tayer	
185B: McMaster	   90	  Fair		  Fair	
		Bottom layer	0.43	Bottom layer	0.43
	1	Thickest layer	0.43	_	0.43

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map		urce	Potential as so   of sand 	urce
	unit	Rating class	Value	Rating class	Value
	İ		İ		1
186B: Chatham, stony	   85   	  Poor   Bottom layer   Thickest layer	0.00	· -	  0.00  0.00
186D:	 	 	l	 	
Chatham, stony	   85   	Poor   Bottom layer   Thickest layer	0.00	· -	0.00
187B: Reade	     85   	    Fair   Thickest layer   Bottom layer	    0.00  0.15	:	    0.00  0.00
188B: Eben, stony	   85   	  Fair   Bottom layer   Thickest layer	  0.29  0.29	:	0.03
188D: Eben, stony	     90 	  Fair   Bottom layer   Thickest layer	0.29	  Fair   Thickest layer   Bottom layer	0.03
188E: Eben, stony	     90 	    Fair   Bottom layer   Thickest layer	    0.29  0.29	:	    0.03  0.29
191B:	 	 		 	
Ruse	50   	Poor   Thickest layer   Bottom layer	0.00	:	0.00
Ensign	   40   	  Poor   Thickest layer   Bottom layer	0.00	:	0.00
197B: Shoepac	     50 	  Fair   Thickest layer   Bottom layer	    0.00  0.64	  Poor   Bottom layer   Thickest layer	0.00
Trenary	   40   	  Poor   Thickest layer   Bottom layer	0.00	  Fair   Thickest layer   Bottom layer	  0.00  0.03
198B: Shoepac	     60 	    Fair   Thickest layer   Bottom layer	    0.00  0.64	    Poor   Bottom layer   Thickest layer	    0.00  0.00
Reade	   30 	  Fair   Thickest layer   Bottom layer	  0.00  0.15	Poor	  0.00  0.00

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of	!	urce	Potential as source of sand		
	map	•				
	unit 	Rating class	Value	Rating class	Value	
200A:	 	 		 		
Charlevoix	   55	  Fair		Poor	İ	
	İ	Thickest layer	0.15	Bottom layer	0.00	
		Bottom layer	0.21	Thickest layer	0.00	
Ensley	   30	  Fair		  Poor		
		Thickest layer	0.00	Bottom layer	0.00	
	 	Bottom layer	0.64	Thickest layer	0.00	
02B:						
Sauxhead, very stony	85			Fair		
	 	Thickest layer Bottom layer	0.00  0.86	Thickest layer Bottom layer	0.00	
	 	BOCCOM Tayer		Boccom Tayer		
06B: Traunik	90	  Fair		  Fair		
11441111	50	Bottom layer	0.43	Bottom layer	0.43	
		Thickest layer	0.43	Thickest layer	0.43	
06D:	 					
Traunik	90	Fair	j	Fair	j	
		Bottom layer	0.43	· -	0.43	
	 	Thickest layer	0.43	Thickest layer	0.43	
11B:					į	
Munising  55   	55	Poor		Fair		
	 	Bottom layer   Thickest layer	0.00	Thickest layer   Bottom layer	0.00	
Abbaye	35	  Poor		  Fair		
ADDaye	33	Bottom layer	0.00	Thickest layer	0.01	
		Thickest layer	0.00	Bottom layer	0.04	
14B:	 					
Kalkaska	60	Poor	j	Fair	j	
		Bottom layer	0.00	Bottom layer	0.64	
	 	Thickest layer 	0.00	Thickest layer 	0.64	
Blue Lake	30	Poor	j	Fair	j	
		Bottom layer	0.00	Thickest layer	0.08	
	 	Thickest layer	0.00	Bottom layer 	0.36	
14D:		 	į	 	į	
Kalkaska	55	Poor   Bottom layer	0.00	Fair   Bottom layer	0.64	
	 	Thickest layer	0.00	Thickest layer	0.64	
Blue Lake	   35	  Poor		  Fair		
2140 14.10		Bottom layer	0.00	Thickest layer	0.08	
	İ	Thickest layer	0.00	Bottom layer	0.36	
14E:	 	 		 		
Kalkaska	55	Poor		Fair		
		Bottom layer	0.00	Bottom layer	0.64	
	 	Thickest layer 	0.00	Thickest layer 	0.64	
Blue Lake	35	Poor	İ	Fair	į	
		Bottom layer	0.00	Thickest layer	0.08	
		Thickest layer	0.00	Bottom layer	0.36	

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	of gravel	urce	Potential as source of sand	
	unit 	Rating class	Value	Rating class	Value
221B:					ļ
ZZIB: Jeske	   40	Poor		  Fair	-
		Bottom layer	0.00	Thickest layer	0.21
	 	Thickest layer	0.00	Bottom layer	0.52
Au Train	30	Poor	İ	Fair	i
		Bottom layer	0.00	Thickest layer	0.00
	 	Thickest layer	0.00	Bottom layer	0.66
Gongeau	20	Poor		  Fair	
	į	Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.52
225B:	 	 		 	
Cusino	95	Poor	į	Fair	į
		Thickest layer	0.00	Thickest layer	0.79
	 	Bottom layer	0.00	Bottom layer	0.86
225D:	İ	İ	İ		i
Cusino	95	Poor		Fair	
		Thickest layer Bottom layer	0.00	Thickest layer Bottom layer	0.79
		Boccom rayer		Boccom Tayer	
226B:					ļ
Kalkaska 50	50	Poor   Bottom layer	0.00	Fair   Bottom layer	0.64
	 	Thickest layer	0.00	Thickest layer	0.64
					İ
Cusino	45	Poor   Thickest layer	0.00	Fair   Thickest layer	0.79
		Bottom layer	0.00	Bottom layer	0.75
226D:					
ZZOD: Kalkaska	   50	Poor		  Fair	İ
	į	Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
Cusino	45	  Poor		  Fair	İ
	ĺ	Thickest layer	0.00	Thickest layer	0.79
		Bottom layer	0.00	Bottom layer	0.86
226E:				 	
Kalkaska	50	Poor	İ	Fair	İ
		Bottom layer	0.00		0.64
	 	Thickest layer	0.00	Thickest layer	0.64
Cusino	40	Poor	İ	Fair	i
		Thickest layer	0.00	Thickest layer	0.79
	 	Bottom layer	0.00	Bottom layer	0.86
226F:					
Kalkaska	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
	 	Thickest layer	0.00	Thickest layer 	0.64
Cusino	35	Poor		  Fair	i
		Thickest layer	0.00	Thickest layer	0.79
		Bottom layer	0.00	Bottom layer	0.86

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct.	!	urce	Potential as so of sand	urce
	map  unit	 		 	
		Rating class	Value	Rating class	Value
227A:	 			 	
Halfaday	90	Poor	j	Fair	į
	 	Bottom layer Thickest layer	0.00	Bottom layer Thickest layer	0.64
	į	_	į	_	į
232B: Shelldrake	   90	  Poor		  Fair	
		Bottom layer	0.00	Thickest layer	0.00
	 	Thickest layer	0.00	Bottom layer	0.95
233B:		 		 	
Abbaye, very stony	50	Poor		Fair	
	 	Bottom layer Thickest layer	0.00	Thickest layer Bottom layer	0.01
7-1		 	į	    Fair	į
Zeba, very stony	35 	Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.03
234A:	 				
Levasseur, very	İ	İ	j	İ	į
stony	55	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
	 	Bottom layer 	0.00	Bottom layer 	0.00
Burt, very stony 35	35	Poor	Ì	Fair	j
	 	Thickest layer Bottom layer	0.00	Thickest layer   Bottom layer	0.07
	į				
235B: Sauxhead, very stony	   60	  Fair		  Fair	
	İ	Thickest layer	0.00	Thickest layer	0.00
	 	Bottom layer	0.86	Bottom layer	0.08
Burt, very stony	30	  Poor		  Fair	
		Thickest layer	0.00	Thickest layer	0.07
	 	Bottom layer	0.00	Bottom layer 	0.86
236B: Waiska, extremely	į	  -	į	  -	į
bouldery	   85	  Fair	l	  Fair	
20424027		Thickest layer	0.83	Bottom layer	0.64
	 	Bottom layer	0.90	Thickest layer	0.64
236D:		 		 	
Waiska, extremely		   Enim		   Enim	
bouldery	85 	rair   Thickest layer	0.83	Fair   Bottom layer	0.64
		Bottom layer	0.90	Thickest layer	0.64
237B:	 	[ 		 	
Chatham	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
	 	Thickest layer 	0.00	Thickest layer 	0.00
Davies	20	Poor	j	Poor	i
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00

Table 14a.--Construction Materials--Continued

	Pct.	!	urce	Potential as source of sand	
	map  unit				
	<u> </u>	Rating class	Value	Rating class	Value
239B:				 	
Longrie	50	Fair	j	Fair	į
		Thickest layer   Bottom layer	0.00	Bottom layer   Thickest layer	0.01
Shingleton	40	Poor		  Fair	
		Bottom layer	0.00	1	0.00
	İ	Thickest layer	0.00	:	0.07
240F:				 	
Trout Bay	30	!		Poor	
		Bottom layer   Thickest layer	0.00	· -	0.00
Congo	25	į	į		į
Gongeau	45 	Bottom layer	0.00	Fair   Thickest layer	0.00
		Thickest layer	0.00	:	0.52
Shingleton	20	Poor		  Fair	
	ĺ	Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.07
Rock outcrop	15	  Not rated 		  Not rated 	
241:					į
Cathro	55	Poor	0.00	Poor	0.00
		Bottom layer   Thickest layer	0.00	Bottom layer   Thickest layer	0.00
Gay	35	  Poor		  Fair	
		Bottom layer   Thickest layer	0.00	· -	0.03
		Interest Tayer		Interest Tayer	
242B: Kalkaska, severely	 			 	
burned	95	Poor	i	  Fair	
	İ	Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
242D:					
Kalkaska, severely burned	0.5	  Poor		Poin	
burned	35	Bottom layer	0.00	Fair   Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
242F:				 	
Kalkaska, severely					
burned	90	Poor		Fair	
		Bottom layer   Thickest layer	0.00	Bottom layer Thickest layer	0.64  0.64
243:	 	 		 	
Markey	95	Poor		  Fair	-
· <b>4</b>		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.86
245B:					
Trout Bay	40	Poor		Poor	
	 	Bottom layer	0.00	Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer	0.00

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct.	of gravel	urce	Potential as source of sand		
	map  unit	!		 		
		Rating class	Value	Rating class	Value	
245B:						
Lupton	30	Poor	j	Poor	i	
		Bottom layer	0.00	Bottom layer	0.00	
		Thickest layer	0.00	Thickest layer	0.00	
Gongeau	20	Poor		  Fair	İ	
		Bottom layer	0.00	Thickest layer	0.00	
		Thickest layer 	0.00	Bottom layer	0.52	
46B:					İ	
Garlic	90	Poor		Fair		
		Bottom layer	0.00	Bottom layer	0.91	
		Thickest layer 	0.00	Thickest layer 	0.91	
46D:			į		į	
Garlic	90	Poor		Fair		
	 	Bottom layer Thickest layer	0.00	<u>-</u>	0.91	
		Inickest layer	0.00	Thickest layer 	0.91	
46E: Garlic		  Poor		  Fair		
Garic	) <b>3</b> 0	Bottom layer	0.00	1	0.91	
		Thickest layer	0.00	Thickest layer	0.91	
48B:	 	 		]		
Escanaba	50	Fair		Fair	j	
		Thickest layer	0.00	Bottom layer	0.00	
	 	Bottom layer	0.60	Thickest layer	0.03	
Greylock	40	Poor		  Fair		
		Thickest layer	0.00	Thickest layer	0.02	
	 	Bottom layer	0.00	Bottom layer	0.03	
48D:					İ	
Escanaba	50	Fair		Fair		
	i	Thickest layer	0.00	Bottom layer	0.00	
		Bottom layer	0.60	Thickest layer 	0.03	
Greylock	40	Poor	j	Fair	j	
		Thickest layer	0.00	Thickest layer	0.02	
		Bottom layer	0.00	Bottom layer	0.03	
48E:			į		į	
Escanaba	50	Fair		Fair		
		Thickest layer Bottom layer	0.00	Bottom layer   Thickest layer	0.00	
	 	Boccom Tayer		Inickest layer		
Greylock	40	Poor		Fair		
	i	Thickest layer	0.00	Thickest layer	0.02	
		Bottom layer 	0.00	Bottom layer 	0.03	
49B:						
Sauxhead	55 	Fair   Thickest layer	10.00	Fair   Thickest layer	10.00	
	 	Thickest layer   Bottom layer	0.00  0.86	Thickest layer   Bottom layer	0.00	
- 1.			į		į	
Skandia	35	Poor		Poor		
	 	Bottom layer   Thickest layer	0.00	Bottom layer   Thickest layer	0.00	
	I	Interest rayer	10.00	I THICKEST TAYEL	0.00	

Table 14a.--Construction Materials--Continued

Map symbol and soil name	of	Pct.   Potential as source of   of gravel map		Potential as source of sand		
	unit	Rating class	Value	Rating class	Value	
	<u> </u>	Racing class	vaiue	Racing class	Value	
250B:	İ		i		i	
Chocolay, extremely	į	j	j		į	
stony	55	Fair		Fair		
		Thickest layer	0.04	Bottom layer	0.02	
		Bottom layer	0.29	Thickest layer	0.02	
Ta a a b a a a i 11 a				 	-	
Jacobsville, extremely stony	30	Poor		  Fair	-	
Cheremery Beeny	30	Bottom layer	0.00		0.03	
		Thickest layer	0.00	Thickest layer	0.03	
	İ	i -	i	<u> </u>	i	
251B:	į	j	į		į	
Greylock	90	Poor		Fair		
		Thickest layer	0.00	Thickest layer	0.02	
		Bottom layer	0.00	Bottom layer	0.03	
0F1D					-	
251D: Greylock	   <b>05</b>	  Poor		  Fair	l	
Gleylock	65	Thickest layer	0.00	Thickest layer	0.02	
		Bottom layer	0.00	Bottom layer	0.02	
252A:	İ		i		i	
Finch	50	Poor	İ	Fair	ĺ	
		Bottom layer	0.00	Thickest layer	0.00	
		Thickest layer	0.00	Bottom layer	0.43	
					ļ	
Kinross	40	Poor		Fair		
	 	Bottom layer Thickest layer	0.00	Thickest layer Bottom layer	0.37	
		Inickest Tayer		Boccom Tayer	0.55	
254C:			i		i	
Kalkaska, dissected	55	Poor	j	Fair	į	
		Bottom layer	0.00	Bottom layer	0.64	
		Thickest layer	0.00	Thickest layer	0.64	
					ļ	
Blue Lake, dissected	35	!		Fair		
		Bottom layer   Thickest layer	0.00	Thickest layer Bottom layer	0.08	
		Inickest Tayer	0.00	BOCCOM Tayer	0.30	
254E:		! 		 	i	
Kalkaska, dissected	55	Poor	j	Fair	i	
		Bottom layer	0.00	Bottom layer	0.64	
		Thickest layer	0.00	Thickest layer	0.64	
					ļ	
Blue Lake, dissected	35	!		Fair		
		Bottom layer Thickest layer	0.00	Thickest layer Bottom layer	0.08	
		Inickest Tayer	0.00	BOCCOM Tayer	0.30	
254F:					i	
Kalkaska, dissected	55	Poor	i	Fair	i	
		Bottom layer	0.00	Bottom layer	0.64	
		Thickest layer	0.00	Thickest layer	0.64	
			ļ			
Blue Lake, dissected	35	•		Fair		
		Bottom layer   Thickest layer	0.00	Thickest layer	0.08	
	1	INTEREST LAVER	0.00	Bottom layer	0.36	
		1	1	I		
	   			[ 		
255D: Wallace	       95	      Poor		    Fair	   	
255D:	       95	 	      0.00	    Fair   Thickest layer	      0.00	

Table 14a.--Construction Materials--Continued

and soil name	Pct. of map	Potential as so of gravel	ource	Potential as source of sand		
	unit	!	1	<u> </u>	1	
	<u> </u> 	Rating class	Value	Rating class	Value	
256B:			i		i	
Whitewash	95	Poor		Fair		
		Bottom layer   Thickest layer	0.00	:	0.82	
266A:	 	 	l I	 		
Spot	50	Poor	i	Fair	İ	
	İ	Bottom layer	0.00	Thickest layer	0.00	
		Thickest layer	0.00	Bottom layer	0.64	
Finch	40	  Poor		  Fair		
		Bottom layer	0.00	Thickest layer	0.00	
		Thickest layer	0.00	Bottom layer	0.43	
267A:			İ			
Finch	85	Poor		Fair	- [	
		Bottom layer	0.00	· -	0.00	
	 	Thickest layer 	0.00	Bottom layer	0.43	
268C:	į		į	į	į	
Munising, calcareous						
substratum, dissected		  Fair		  Poor	l	
dissected	40	Thickest layer	0.00		0.00	
		Bottom layer	0.15	Thickest layer	0.00	
Frohling, calcareous substratum,	   	   	   	   		
dissected	30	Fair		Poor	i	
	į	Thickest layer	0.00	Thickest layer	0.00	
		Bottom layer	0.60	Bottom layer	0.00	
Cookson, dissected	20	Poor		Poor		
		Thickest layer	0.00	Bottom layer	0.00	
	 	Bottom layer	0.00	Thickest layer	0.00	
269E:			İ		İ	
Frohling, calcareous						
substratum, dissected	   50	  Fair		Poor		
dissected	30	Thickest layer	0.00	Thickest layer	0.00	
		Bottom layer	0.60	Bottom layer	0.00	
Garlic, dissected	   20	  Poor	l I	  Fair	l I	
-	İ	Bottom layer	0.00	Bottom layer	0.91	
	į	Thickest layer	0.00	Thickest layer	0.91	
Cookson, dissected	20	  Poor		  Poor		
		Thickest layer	0.00	Bottom layer	0.00	
		Bottom layer	0.00	Thickest layer	0.00	
272C:						
Munising, calcareous						
substratum, dissected	40	  Fair		  Poor		
######################################	-20	Thickest layer	0.00	Bottom layer	0.00	
	i	-	0.15	:	0.00	
		Bottom layer	0.15	Thickest layer	O. 	

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct.	Potential as so of gravel	urce	Potential as source of sand	
	map  unit			 	
		Rating class	Value	Rating class	Value
272C:	 	 		 	
Yalmer, calcareous			i		i
substratum,	ĺ		j		j
dissected	30	Fair		Poor	
		Thickest layer	0.00	· -	0.00
		Bottom layer	0.69	Thickest layer	0.00
Frohling, calcareous	 	 			i
substratum,	İ	İ	į		i
dissected	20	Fair	į	Poor	j
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.60	Bottom layer	0.00
275B:	 	 		 	l I
Munising, calcareous			i		
substratum	50	Fair	į	Poor	j
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.15	Thickest layer	0.00
Cookson	   40	  Poor		  Poor	
COOKSOII	10	Thickest layer	0.00	!	0.00
		Bottom layer	0.00	· -	0.00
	ĺ	İ	İ		ĺ
281E:		   Dane		   Daare	
Mongo, dissected	95 	Bottom layer	0.00	Poor   Bottom layer	0.00
		Thickest layer	0.00	-	0.00
	İ	į	j	į	j
282B:		Poor		  Fair	
Furlong	50	Bottom layer	0.00	!	0.00
		Thickest layer	0.00	-	0.86
	ĺ				
Shingleton	40	Poor		Fair	
	 	Bottom layer	0.00	-	0.00
	 	Thickest layer 	0.00	Boccom Tayer	0.07
282D:	İ	İ	j		j
Furlong	50	Poor		Fair	
		Bottom layer	0.00	-	0.00
	 	Thickest layer	0.00	Bottom layer	0.86
Shingleton	40	Poor	i	  Fair	
_	İ	Bottom layer	0.00	Thickest layer	0.00
	į	Thickest layer	0.00	Bottom layer	0.07
284B:	 	l		 	
Steuben	40	Poor		  Fair	l I
	İ	Thickest layer	0.00		0.00
	į	Bottom layer	0.00	Bottom layer	0.91
Blue Lake	30	Poor		Pair	
Dide make	30 	Poor   Bottom layer	0.00	Fair   Thickest layer	0.08
	! 	Thickest layer	0.00	Bottom layer	0.36
Kalkaska	20	Poor	İ	Fair	į
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	of gravel	urce	Potential as source   of sand 	
	unit	Rating class	Value	Rating class	Value
			1		İ
284D:					
Steuben	40	Poor   Thickest layer	0.00	Fair   Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.91
Blue Lake	   25	  Poor		  Fair	
	 	Bottom layer Thickest layer	0.00	Thickest layer Bottom layer	0.08
				_	
Kalkaska	25	Poor	0.00	Fair	0.64
	   	Bottom layer   Thickest layer	0.00	Bottom layer   Thickest layer	0.64
284E:	 				-
Steuben	<b>40</b> 	Poor		Fair	
	 	Thickest layer   Bottom layer	0.00	Thickest layer   Bottom layer	0.00  0.91
Blue Lake	   30	Poor		  Fair	
		Bottom layer	0.00	Thickest layer	0.08
	 	Thickest layer	0.00	Bottom layer	0.36
Kalkaska	20	Poor		  Fair	
		Bottom layer	0.00	Bottom layer	0.64
	 	Thickest layer 	0.00	Thickest layer 	0.64
285B: Halfaday	   50	Poor		  Fair	
		Bottom layer	0.00	!	0.64
	 	Thickest layer	0.00	Thickest layer	0.64
Kinross	40	  Poor		  Fair	
		Bottom layer	0.00	Thickest layer	0.37
	 	Thickest layer 	0.00	Bottom layer 	0.95 
286B: Greylock	   50	Poor		  Fair	
-	İ	Thickest layer	0.00	Thickest layer	0.02
	 	Bottom layer	0.00	Bottom layer	0.03
Cookson	40	Poor		Poor	
	 	Thickest layer Bottom layer	0.00	Bottom layer Thickest layer	0.00
		Boccom Tayer		Inickest layer	
287B: McMaster	   55	  Fair		  Fair	
	ĺ	Bottom layer	0.43	Bottom layer	0.43
	 	Thickest layer	0.43	Thickest layer 	0.43
Davies	35	Poor		Poor	
	 	Bottom layer Thickest layer	0.00	Thickest layer Bottom layer	0.00
		Inickest layer		Boccom Tayer	
290A: Namur, very stony	   50	  Poor		  Poor	
		Thickest layer	0.00	Bottom layer	0.00
	 	Bottom layer	0.00	Thickest layer 	0.00
Ruse, very stony	40	Poor	İ	  Fair	İ
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	!	urce	Potential as so of sand	urce
	unit			<u> </u>	
		Rating class	Value	Rating class	Value
292B:	 	 			
Mashek, sandy	İ		i		i
substratum	90	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.04
		Bottom layer	0.74	Bottom layer	0.74
296D:	 	 		 	
Islandlake	55	Poor	i	  Fair	i
	İ	Bottom layer	0.00	Bottom layer	0.08
	ĺ	Thickest layer	0.00	Thickest layer	0.79
McMillan	25	Poor		  Fair	
MCMIIIAII	33	Bottom layer	0.00	!	0.35
	 	Thickest layer	0.00	· -	0.58
	ĺ	į	į	_	į
296E: Islandlake	55	Poor		  Fair	
isiandiake	55	Bottom layer		Bottom layer	0.08
		Thickest layer	0.00	_	0.79
					ĺ
McMillan	35	!	1	Fair	
	 	Bottom layer   Thickest layer		Bottom layer Thickest layer	0.35
	 	Inickest layer		Inickest layer	0.38
297B:	İ	İ	j		į
Rubicon, severely			ļ		ļ
burned	95	!		Fair	
	 	Bottom layer Thickest layer	0.00	Bottom layer   Thickest layer	0.82
	 	Inickest layer		Inickest layer	0.02
297D:					į
Rubicon, severely					
burned	95 	Bottom layer		Fair   Bottom layer	0.82
	 	Thickest layer	0.00	_	0.82
					į
298B: Wurtsmith	   55	Poor		  Fair	
Wal obiil oil	33	Bottom layer	0.00	!	0.71
	İ	Thickest layer	0.00	· -	0.91
Deford		  Poor		  Fair	
Deloid	33 	Bottom layer	0.00		0.00
		Thickest layer	0.00	· -	0.25
					ļ
299F: Shelldrake	   <b>a</b> a	Poor		  Fair	
bheildiake	55	Bottom layer	0.00	!	0.00
		Thickest layer	0.00	· -	0.95
		!			ļ
300F: Shelldrake	   61	Poor		  Fair	
	"	Bottom layer	0.00	!	0.00
		Thickest layer	0.00	· -	0.95
Don't land				 	
Dune land	38 	Not rated	l	Not rated 	
301F:					
Cookson, dissected	55	!		Poor	ļ
		Thickest layer	0.00	· -	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of		urce	Potential as so of sand	urce
	map  unit	 			
	<u> </u>	Rating class	Value	Rating class	Value
301F:	 				
Nykanen, dissected	35	Poor	į	Poor	j
		Thickest layer   Bottom layer	0.00	Bottom layer Thickest layer	0.00
302B:	 	 		 	
Dillingham	45	Poor	i	Fair	i
	ĺ	Bottom layer	0.00	Thickest layer	0.00
	 	Thickest layer	0.00	Bottom layer	0.75
Kalkaska	40	  Poor		  Fair	
		Bottom layer	0.00	Bottom layer	0.64
	 	Thickest layer	0.00	Thickest layer	0.64
302D:					į
Dillingham	52	Poor		Fair	
	 	Bottom layer   Thickest layer	0.00	Thickest layer   Bottom layer	0.00
Kalkaska		  Poor		  Fair	
Raikaska	4:5	Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
302E:	 	 			
Dillingham	50	Poor	İ	Fair	ĺ
		Bottom layer	0.00	Thickest layer	0.00
	 	Thickest layer	0.00	Bottom layer	0.68
Kalkaska	40	Poor	İ	  Fair	İ
	 	Bottom layer Thickest layer	0.00	Bottom layer Thickest layer	0.64
	į				
002F: Dillingham	   50	  Poor		  Fair	
3		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.68
Kalkaska	40	  Poor		  Fair	
		Bottom layer	0.00	Bottom layer	0.64
	 	Thickest layer	0.00	Thickest layer	0.64
303B:	į	<u> </u>	į		į
Kiva	55			Fair	
	 	Thickest layer   Bottom layer	0.00  0.57	Thickest layer   Bottom layer	0.00  0.57
Trenary	   30	Poor		  Fair	
		Thickest layer	0.00	Thickest layer	0.00
	į	Bottom layer	0.00	Bottom layer	0.03
03D:	 	 		[ 	
Kiva	55	Fair	1	Fair	ļ
		Thickest layer	0.00	Thickest layer	0.00
	 	Bottom layer	0.57	Bottom layer	0.57
Trenary	30	Poor	į	Fair	j
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03

Table 14a.--Construction Materials--Continued

	of map	map		Potential as so of sand	ource
	unit 	   Rating class	Value	Rating class	Value
303E:	 	 	l	 	
Kiva	   55   	  Fair   Thickest layer   Bottom layer	0.00	  Fair   Thickest layer   Bottom layer	0.00
Trenary	   30 	  Poor   Thickest layer   Bottom layer	  0.00  0.00	  Fair   Thickest layer   Bottom layer	  0.00  0.03
20FD -		  -	İ		
305B: Wurtsmith	   55   	  Poor   Bottom layer   Thickest layer	0.00	  Fair   Bottom layer   Thickest layer	  0.71  0.91
Meehan		Poor	į	  Fair	į
meenan	40	Bottom layer   Thickest layer	0.00	Bottom layer	0.71
306C:	 	 		 	
Deerton, dissected	35   	Poor   Thickest layer   Bottom layer	0.00	Fair   Thickest layer   Bottom layer	  0.13  0.42
Tokiahok, dissected		Poor		  Fair	
TORIANOR, GIBBECTEG		Thickest layer   Bottom layer	0.00		0.00
Jeske, dissected	   20 	Bottom layer	0.00	· -	0.21
307B: Rubicon, very deep water table	         95 	Thickest layer           Poor   Bottom layer   Thickest layer	0.00	      Fair   Bottom layer	0.52           0.82   0.82
307D: Rubicon, very deep	   	   		   	
water table	95     	Poor   Bottom layer   Thickest layer	0.00	Fair   Bottom layer   Thickest layer	0.82
308B:					į
Rubicon	55   	Poor   Bottom layer   Thickest layer	0.00	:	0.82
Sultz	   40   	  Poor   Bottom layer   Thickest layer	0.00		0.00
308D: Rubicon	     55   	    Poor   Bottom layer   Thickest layer	    0.00  0.00	:	    0.82  0.82
Sultz	   40   	Poor   Bottom layer   Thickest layer	į	  Fair	0.00

Table 14a.--Construction Materials--Continued

	Pct. of	Potential as so of gravel	urce	Potential as so of sand	urce
	map  unit	 			
	<u> </u>	Rating class	Value	Rating class	Value
309B: Rubicon, deep water table	       95 	    Poor   Bottom layer   Thickest layer	      0.00		      0.82
309D: Rubicon, deep water table	       95   	    Poor   Bottom layer   Thickest layer		      Fair   Bottom layer     Thickest layer	      0.82  0.82
310B: Kalkaska, burned	   90   	  Poor   Bottom layer   Thickest layer	0.00	· -	0.64
310D: Kalkaska, burned	   95   	  Poor   Bottom layer   Thickest layer	0.00	· -	0.64
310E: Kalkaska, burned	     95   	  Poor   Bottom layer   Thickest layer	0.00	· -	0.64
311B: Kalkaska, very deep water table, burned	       95 	    Poor   Bottom layer   Thickest layer	0.00	· -	    0.64  0.64
311D: Kalkaska, very deep water table, burned	       95   	  -  Poor   Bottom layer   Thickest layer	0.00	· -	0.64
312B: Islandlake, burned	   95   	  Poor   Bottom layer   Thickest layer	0.00	· -	0.08
312D: Islandlake, burned	     95   	  Poor   Bottom layer   Thickest layer	0.00	· -	0.08
313B: Kalkaska, deep water table, burned		    Poor   Bottom layer   Thickest layer	0.00		      0.64  0.64
314B: Blue Lake, very deep water table, burned	:	  Poor   Bottom layer   Thickest layer	0.00	:	0.08

Table 14a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	Potential as source of gravel		Potential as source of sand	
	unit 	   Rating class	Value	Rating class	Value
315B: Blue Lake, deep water table, burned	       95	      Poor		      Fair	
316B:	   	Bottom layer   Thickest layer 	0.00		0.08
Blue Lake, burned	   95   	  Poor   Bottom layer   Thickest layer	0.00	:	0.08
316D: Blue Lake, burned	   95   	  Poor   Bottom layer   Thickest layer 	  0.00  0.00		0.08
317B: Kalkaska, very deep water table	     95   	  Poor   Bottom layer   Thickest layer	0.00	    Fair   Bottom layer   Thickest layer	0.64
317D: Kalkaska, very deep water table	     95   	  -   Poor   Bottom layer   Thickest layer	0.00	· -	    0.64  0.64
318B: Islandlake, very deep water table	     95   	  Poor   Bottom layer   Thickest layer	0.00	  -   Fair   Bottom layer   Thickest layer	0.08
318D: Islandlake, very deep water table	     95   	  Poor   Bottom layer   Thickest layer	0.00	· -	    0.08  0.79
319B: Islandlake	   95     	  Poor   Bottom layer   Thickest layer	0.00	:	0.08
319D: Islandlake	     95   	  Poor   Bottom layer   Thickest layer	0.00	:	0.08
319E: Islandlake	95   95   	  Poor   Bottom layer   Thickest layer	0.00	· -	0.08
319F: Islandlake	   95   	  Poor   Bottom layer   Thickest layer	0.00	  Fair   Bottom layer   Thickest layer	    0.08  0.79

Table 14a.--Construction Materials--Continued

Map symbol	Pct.	Potential as source		Potential as source	
and soil name	of	of gravel		of sand	
	map				
	unit		I		
		Rating class	Value	Rating class	Value
320B:	 	 		 	
Kalkaska, deep water				 	i
table	'	Poor	i	Fair	i
	İ	Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
321B:	 			 	l I
Kalkaska	50	Poor	j	Fair	j
		Bottom layer	0.00	Bottom layer	0.64
		Thickest layer	0.00	Thickest layer	0.64
Deerton	   45	  Poor		  Fair	
		Thickest layer	0.00	Thickest layer	0.13
	 	Bottom layer	0.00	Bottom layer	0.42
321D:	 			 	
Kalkaska	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.64
	 	Thickest layer	0.00	Thickest layer	0.64
Deerton	   45	  Poor		  Fair	
		Thickest layer	0.00	Thickest layer	0.13
		Bottom layer	0.00	Bottom layer	0.42

### Table 14b.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential as source reclamation mater		Potential as source     of roadfill   		Potential as source   of topsoil 		
	 	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value	
10:				 		 		
Beaches	100	  Not rated		  Not rated		  Not rated		
11C:				 		 		
Deer Park	90	Poor	į	Good	į	Poor	į	
		Too sandy	0.00			Too sandy	0.00	
		Wind erosion	0.00			Too acid	0.88	
		Organic matter	0.12					
		content (low)						
		Too acid	0.50					
	 	Droughty	0.79	 		 		
11E:								
Deer Park	95	!		Fair		Poor		
		Too sandy	0.00	Slope	0.92	Too sandy	0.00	
	ļ	Wind erosion	0.00			Slope	0.00	
	ļ	Organic matter	0.12			Too acid	0.88	
		content (low)						
		Too acid	0.50					
		Droughty 	0.79	 		 		
11F:	İ		İ	İ	İ	İ	İ	
Deer Park	98	!	1	Poor		Poor		
	ļ	Too sandy	0.00	Slope	0.00		0.00	
	ļ	Wind erosion	0.00			Too sandy	0.00	
		Organic matter	0.12			Too acid	0.88	
		content (low)						
		Too acid	0.50					
		Droughty 	0.79	 		 		
12B:	į		į		į	į	į	
Rubicon	90	!		Good		Poor		
		Too sandy	0.00			Too sandy	0.00	
		Wind erosion	0.00	 		 		
		Organic matter content (low)	0.12	 		 		
		Droughty	0.23	 	1	 	1	
		Too acid	0.50					
12D:		 						
Rubicon	95	  Poor		  Good		  Poor		
		Too sandy	0.00		i	Too sandy	0.00	
		Wind erosion	0.00	İ	i	Slope	0.63	
	İ	Organic matter	0.12	İ	i		1	
	İ	content (low)	i	į	i	į	í	
	İ	Droughty	0.23	į	i	į	í	
	1	Too acid	0.50		1		1	

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source reclamation mater:		Potential as sou of roadfill	rce	Potential as sou of topsoil	rce
	   	!	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
100							
12E: Rubicon	   95	  Poor	 	  Poor		  Poor	
1142 2 0 0 11		Too sandy	0.00	Slope	0.00	'	0.00
		Wind erosion	0.00	22020		Too sandy	0.00
		Organic matter	0.12		i		
i	İ	content (low)	İ		i		i
i	İ	Droughty	0.23	İ	İ		i
	ĺ	Too acid	0.50		İ		İ
13B:	 	l	 	l		l	
Kalkaska	94	Poor	 	  Good		Poor	
i	İ	Too sandy	0.00	<u> </u>	i	Too sandy	0.00
i	İ	Wind erosion	0.00		i	· •	i
İ	İ	Organic matter	0.18	İ	İ		İ
!		content (low)					
!		Too acid	0.50				
ļ		Droughty	0.77				
13D:	 		 	 			
Kalkaska	96	Poor	İ	Good	i	Poor	i
	İ	Too sandy	0.00	İ	į	Too sandy	0.00
!		Wind erosion	0.00			Slope	0.63
!		Organic matter	0.18				
1		content (low)					
,		Too acid	0.50		!		!
ļ	 	Droughty	0.77	  -		 	
13E:		 	 	 		 	
Kalkaska	100	Poor	ĺ	Poor	ĺ	Poor	İ
!		Too sandy	0.00	Slope	0.00	Slope	0.00
1		Wind erosion	0.00			Too sandy	0.00
,		Organic matter	0.18		!		!
		content (low)			!		!
		Too acid	0.50	 		l I	
	 	Droughty 	0.77 	 			
15A:	İ	İ		İ	İ		İ
Croswell	92	!	!	Fair		Poor	
,		Too sandy	0.00	Wetness	0.53	-	0.00
,		Wind erosion	0.00			Wetness	0.53
· · · · · · · · · · · · · · · · · · ·		Organic matter	0.12				-
i de la companya de la companya de la companya de la companya de la companya de la companya de la companya de		content (low)	  0.50	l I		İ	
		Too acid	'	 		 	
	 	Droughty	10.99		1	l .	i
	   	Droughty 	0.99 	İ			1
16A:	     	 			 		
16A: Paquin	         90	      Poor	 	Poor		Poor	
	         90	  Poor   Too sandy	0.00	Depth to cemented	      0.00	Too sandy	0.00
	         90 	  Poor   Too sandy   Wind erosion	    0.00  0.00	Depth to cemented pan	į	Too sandy Depth to cemented	
	         90   	  Poor   Too sandy   Wind erosion   Droughty	0.00	Depth to cemented pan	    0.00    0.53	Too sandy Depth to cemented pan	0.00
	       90       	  Poor   Too sandy   Wind erosion	0.00	Depth to cemented pan	į	Too sandy Depth to cemented	

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as sou of roadfill	rce	Potential as sou of topsoil	rce
		Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
17A:		 	 		 	 	
Au Gres	92	Poor	ĺ	Poor	ĺ	Poor	ĺ
		Too sandy	0.00	Wetness	0.00	-	0.00
		Wind erosion	0.00		!	Wetness	0.00
		Organic matter	0.12			Too acid	0.76
		content (low)					
		!	0.50	 	 	 	
		Droughty	U. 63 	 	 	 	 
18:	i	! 	 			 	
Kinross	92	Poor	İ	Poor	İ	Poor	i
	į	Too sandy	0.00	Wetness	0.00	Too sandy	0.00
	ĺ	Wind erosion	0.00		ĺ	Wetness	0.00
		Organic matter	0.12				
		content (low)					
		Too acid	0.50				
		Droughty	0.99				ļ
19:				1		İ	
Deford	92	  Poor	l I	Poor	l I	  Poor	
Deloid	32	Too sandy	0.00	Wetness	0.00	!	0.00
		Wind erosion	0.00	We chiebb		Wetness	0.00
	i	Organic matter	0.12		İ	Too acid	0.99
	į	content (low)	İ		İ		i
	į	Too acid	0.50	İ	İ		İ
21A:							
Ingalls	90	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	-	0.00
		Wind erosion   Organic matter	0.00	 	 	Wetness Too acid	0.00
		content (low)	0.12	 	 	100 acid 	0.76
	i	Too acid	0.50		i		İ
	į	İ	į	İ	į		į
24B:							
Munising	90	•		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Droughty	0.00	Depth to cemented	0.00	Depth to cemented	0.01
		Depth to cemented pan	10.01	pan	l I	pan   Too sandy	0.20
		Too acid	0.12	] 	i İ	Too acid	0.59
	i	Too sandy	0.20		İ		
	į	j	į	İ	į		į
25B:							
Munising	55	!		Poor		Poor	
		Wind erosion	0.00	1	0.00		0.00
		Droughty	0.00	: -	0.00	_	0.01
		Depth to cemented	0.01	pan	I I	pan Too gandu	10.00
		pan Too acid	0.12	 	I I	Too sandy Too acid	0.20
		Too sandy	0.20	 	 		
	İ			İ	i		İ
Yalmer	30	Poor		Poor		Poor	
		Too sandy	0.00	·	0.00	· -	0.00
		Wind erosion	0.00	Depth to cemented	0.00	'	0.00
		Droughty	0.00	pan		Depth to cemented	0.10
		Too acid	0.00			pan	
		Depth to cemented	0.10			Too acid	0.68
	1	pan	I	I	I	I	1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater:		Potential as sour	rce	Potential as sour	rce
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
25D: Munising	   55	Poor	 	  Poor	 	Poor	l I
muniping	33	!	0.00	Wetness	0.00		0.00
	l I	Droughty	0.00	Depth to cemented			
	 	Depth to cemented		pan pan	0.00	pan	0.01
	i	pan			 	_	0.20
	i	Too acid	0.12	i I		· · · · · · · ·	0.59
		Too sandy	0.20				0.63
	İ				i		i
Yalmer	30	Poor	İ	Poor	į į	Poor	i
	İ	Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00	Depth to cemented	0.00	Wetness	0.00
		Droughty	0.00	pan		Depth to cemented	0.10
		Too acid	0.00			pan	
		Depth to cemented	0.10			Slope	0.63
		pan				Too acid	0.68
							ļ
B1D:				 			ļ
Trenary	85	1		Good		Fair	
		!	0.12	 		Slope	0.84
		content (low)	  0.50	l I			
		100 acid	0.50 	 	 		 
33:		 	 	 	 		
Ensley	90	Poor	 	Poor		Poor	l
		Wind erosion	0.00	!	0.00		0.00
	i	Organic matter	0.12				0.00
	İ	content (low)			i	_	0.92
	į		j	İ	j j	(rock fragments)	j
35B:							
Munising, calcareous	:						
substratum	40	Poor	!	Poor		Poor	
		!	0.00	!	0.00	Wetness	0.00
		Too acid	0.00	Depth to cemented	0.00	Depth to cemented	0.05
		Depth to cemented	0.05	pan		pan Too acid	
	 	pan   Droughty	  0.06	 	 	Too acid	0.88
		Dioughty	<b>0.00</b>	 	 		
Yalmer, calcareous		 	 	 	 		i
substratum	30	Poor	! 	Poor		Poor	i
	i	Wind erosion	0.00	Wetness	0.00	Wetness	0.00
	İ	Droughty	0.00	Depth to cemented		Rock fragments	0.00
	İ	Too acid	0.00	pan	j	Depth to cemented	
		Depth to cemented	0.36		ı i	pan	
		pan			l İ	Too sandy	0.47
		Too sandy	0.47				
Frohling, calcareous	:						
substratum	20	Fair		Poor		Fair	
		Depth to cemented	0.10	Depth to cemented	0.00	Depth to cemented	0.10
		pan		pan		pan	
	1	Too acid	0.20	I		Too acid	0.76
	<u> </u>	Droughty	0.43	i	1		1

Table 14b.--Construction Materials--Continued

of map	reclamation mater		Potential as sou of roadfill	rce	Potential as sou of topsoil	rce
unit   	Rating class and   limiting features	Value	Rating class and   limiting features	Value	   Rating class and   limiting features	Valu
				Ī		
   90 	Too sandy	    0.14	  Good 		  Fair   Too sandy	    0.14
     	Too acid Organic matter content (low) Droughty	0.26  0.88    0.99	 	     	    - 	
98	Fair	i	Poor	i	Poor	i
     	Too sandy Too acid Organic matter content (low)	0.14	Slope   	0.00	Slope   Too sandy 	0.00
 	Dioughty	0.99	 		 	
		i		i		i
60	Fair	į	Poor	į	Poor	į
	Droughty	0.65	Wetness	0.00	Wetness	0.00
   	Too acid Depth to bedrock	0.84	Depth to bedrock	0.00	Depth to bedrock   	0.93
30	Fair	İ	Poor	İ	Poor	i
į	Depth to bedrock	0.21	Depth to bedrock	0.00	Wetness	0.00
   	Too acid Droughty	0.61  0.72	Wetness   	0.00	Depth to bedrock   Too acid 	0.21
90	    Poor		    Good	İ	    Poor	į
	Too sandy	0.00		İ	Too sandy	0.00
ĺ	Droughty	0.00		İ	Rock fragments	0.00
	Organic matter	0.12			Hard to reclaim	0.00
	content (low) Too acid	0.50	 		rock fragments) Too acid	0.95
90	!		1		!	
		:			· -	0.00
 		0.12	CODDIE CONCENT		!	0.00
	Droughty	0.32		i	Hard to reclaim	0.00
į	Too acid	0.68	j	į	(rock fragments)	İ
	Cobble content	0.79				
90	  Fair	1	Poor		  Poor	1
50	!	0.61		0.00	!	0.00
   	Organic matter content (low)	0.88	•	1	Depth to bedrock	
				ļ		
	   Doom		   Doors	1	   Doom	
55 	•	10.00		1	!	0.00
I 	Too sandy   Wind erosion	0.00	pebcu co pediock		Depth to bedrock	1
1	!	:	1 1	1	:	
	Droughtv	0.00			Too acid	0./6
	Droughty Depth to bedrock	0.00 0.16	 		Too acid 	0.76
	of   map   unit	of reclamation mater map unit  Rating class and limiting features  90 Fair  Too sandy Too acid Organic matter content (low) Droughty  98 Fair  Too sandy Too acid Organic matter content (low) Droughty  60 Fair Droughty Too acid Depth to bedrock Too acid Droughty  90 Poor Too sandy Droughty Organic matter content (low) Too acid Droughty  90 Poor Too sandy Organic matter content (low) Too acid  90 Poor Too sandy Organic matter content (low) Too acid Cobble content  90 Fair Too acid Cobble content  90 Fair Too acid Cobble content	map	map unit    Rating class and   Value   Rating class and   limiting features   Good	Of   reclamation material   Of roadfill   map	Of topsoil map   Interest

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source reclamation mater:		Potential as sou of roadfill	rce	Potential as sou of topsoil	irce
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
47C:		 	 	 		 	
Au Train	3.0	Poor	 	Poor		Poor	i
		Too sandy	0.00	Depth to bedrock	1	Too sandy	0.00
	i	Wind erosion	0.00	Wetness	0.00	Wetness	0.00
	i	Droughty	0.00			Depth to bedrock	
	j I	Depth to bedrock	0.00	i I	į	Too acid	0.12
47E:	j I	i I	   	i I	į	 	
Deerton	55	Poor		Poor	į	Poor	İ
		Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
		Wind erosion	0.00	Slope	0.50	Slope	0.00
		Droughty	0.00			Depth to bedrock	0.16
		Depth to bedrock Too acid	0.16  0.50	 		Too acid 	0.76
Au Train	30	  Poor	 	  Poor		  Poor	
		Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Droughty	0.00			Depth to bedrock	0.00
		Depth to bedrock	0.00 0.50	 		Too acid   Slope	0.12
48:		 	 	 		 	
Burt	90	Poor		Poor		Poor	
		Too sandy	0.00	Depth to bedrock	1	Too sandy	0.00
		Droughty	0.00	Wetness	0.00	Wetness	0.00
		Depth to bedrock Organic matter	0.00	 		Depth to bedrock	0.00
	i	content (low)			i	 	i
		Too acid	0.50		į	   	
49B: Cookson		 	   	    Poor		    Fair	
COOKSOII	30	Too acid	0.50	Depth to bedrock	1	Depth to bedrock	10 93
		Organic matter content (low)	0.68				
		Depth to bedrock	0.93	 		   	
51:						 	
Nahma	50	Poor	10.00	Poor	10.00	Poor	10.00
	1	Wind erosion   Depth to bedrock	0.00	Wetness Depth to bedrock	0.00	Wetness   Organic matter	0.00
		Water erosion	0.94	pebcu co pediock	0.00	content (high)	0.00
		Carbonate content	:		į	Depth to bedrock	0.54
Ruse	40	Poor	 	Poor		  Poor	
	10	Droughty	0.00	Depth to bedrock		Wetness	0.00
	İ	Depth to bedrock	:	Wetness	0.00	:	0.00
	į	Carbonate content		į		Organic matter	0.78
						content (low)	

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater:		Potential as sou of roadfill	rce	Potential as sou of topsoil	rce
	   	·	Value	   Rating class and   limiting features	Value	Rating class and limiting features	Value
52B: Summerville	     85 	  Poor   Droughty	0.00	  Poor   Depth to bedrock		    Poor   Depth to bedrock	0.00
	     	Depth to bedrock   Organic matter   content (low)   Too acid   Water erosion	0.00  0.88    0.88  0.90	 	     	    - 	     
57:	j I	 		İ I	j I	 	į į
Carbondale	30	Fair   Too acid 	  0.99 	Poor   Wetness 	  0.00 	Poor Wetness Organic matter content (high)	0.00
Lupton	   30   	  Good   	       	  Poor   Wetness   	    0.00 	Poor   Wetness   Organic matter   content (high)	  0.00  0.00
Tawas	   30     	  Fair   Organic matter   content (low)   Too acid	  0.12    0.50	  Poor   Wetness   	    0.00   	Poor   Wetness   Organic matter   content (high)   Too acid	  0.00  0.00    0.92
58: Dawson	   30     	  Fair   Organic matter   content (low)   Too acid	      0.12    0.50	  Poor   Wetness 	      0.00 	Poor   Wetness   Organic matter   content (high)	    0.00  0.00 
Greenwood	30	  Fair   Too acid 	      0.03 	  Poor   Wetness 	      0.00 	Too acid 	0.00
Loxley	   30     	  Fair   Too acid   	      0.50   	  Poor   Wetness   	      0.00   	Too acid    Poor   Wetness   Organic matter   content (high)   Too acid	0.32    0.00  0.00    0.41
59: Chippeny	   55     	:	0.90	  Poor   Wetness   Depth to bedrock 	    0.00  0.00	  Poor   Wetness   Organic matter   content (high)   Depth to bedrock	    0.00  0.00    0.35
Nahma	30	  Poor   Wind erosion   Depth to bedrock   Water erosion   Carbonate content	0.90	  Poor   Wetness   Depth to bedrock 	    0.00  0.00 	  Poor   Wetness   Organic matter   content (high)   Depth to bedrock	0.00

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as sourc reclamation mater		Potential as sou of roadfill	rce	Potential as sou of topsoil	ırce
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60: Histosols	     50   	    Not rated   	       	  Poor   Wetness 	    0.00 	  Poor   Wetness   Organic matter   content (high)	    0.00  0.00
Aquents	   50   	  Poor   Organic matter   content (low)	  0.00 	  Poor   Wetness   	0.00	  Poor   Wetness   	  0.00 
61: Pits	100	    Not rated 		    Not rated 		    Not rated 	
62F: Udipsamments	50	    Not rated		    Not rated	ļ	    Not rated	
Udorthents	50	  Not rated		Not rated		  Not rated	
64B:				 		 	
Kiva	90	Poor   Too sandy   Organic matter   content (low)   Droughty   Too acid	  0.00  0.12    0.24  0.61	Good         		Poor   Too sandy   Rock fragments   Hard to reclaim   (rock fragments)	  0.00  0.00  0.50
64D: Kiva	   90       	Poor   Too sandy   Organic matter   content (low)   Droughty   Too acid	  0.00  0.12    0.24  0.61	  Good       	         	   Poor   Too sandy   Rock fragments   Hard to reclaim   (rock fragments)   Slope	  0.00  0.00  0.50 
65D:		[ 		 		 	
Jeske, bedrock terrace	   45         	Poor Too sandy Wind erosion Droughty Depth to bedrock Organic matter content (low) Too acid	0.00	  Poor   Depth to bedrock   Wetness   	  0.00  0.00     	   Poor   Too sandy   Wetness   Depth to bedrock 	0.00
Gongeau, bedrock terrace	   25           	Poor	0.00	  Poor   Depth to bedrock   Wetness   	    0.00  0.00   	   Poor   Too sandy   Wetness   Depth to bedrock	    0.00  0.00  0.00

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as sou of roadfill	rce	Potential as sou of topsoil	irce
	<u> </u>	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
65D:		 	 	 	1	 	1
Deerton, bedrock	i		İ		i		i
terrace	20	Poor	İ	Poor	i	Poor	i
	i	Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
	i	Wind erosion	0.00		i	Depth to bedrock	
	İ	Droughty	0.00	İ	i	Slope	0.16
	İ	Depth to bedrock	0.16		İ	Too acid	0.76
		Too acid	0.50	!	1		
65F:			 	 			
Jeske, bedrock	İ		İ	İ	į		İ
terrace	45	Poor		Poor		Poor	
		Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Droughty	0.00		!	Depth to bedrock	0.01
		Depth to bedrock	:		!		!
		Organic matter	0.12		1	1	
		content (low)	  0.50	 	1	 	1
					İ		
Gongeau, bedrock		   December		I Parasa		   D = = = =	
terrace	25	Poor		Poor		Poor	10.00
		Too sandy Wind erosion	0.00	Depth to bedrock Wetness	0.00	Too sandy Wetness	0.00
		Depth to bedrock	!	wechess	1	Depth to bedrock	
	1	Droughty	0.00		i	Depen to Dearock	1
	i	Organic matter	0.12		i		i
	i	content (low)			i		i
	į	Too acid	0.50	į	į		į
Deerton, bedrock		 	 	 		 	
terrace	20	Poor	! 	Poor	i	Poor	i
		Too sandy	0.00	Depth to bedrock		!	0.00
	i	Wind erosion	0.00	Slope	0.00	Slope	0.00
	į	Droughty	0.00	İ	į	Depth to bedrock	0.16
		Depth to bedrock	0.16			Too acid	0.76
		Too acid	0.50				
66D:			 				
Ruse, bedrock			ĺ		į		İ
terrace	40	Poor		Poor		Poor	
		Depth to bedrock		. –		•	0.00
		Droughty Water erosion	0.00	Wetness	0.00	Depth to bedrock	
		Carbonate content		 	1	Organic matter content (low)	0.78
		Too acid	0.95	 		content (low)	
				į	İ		
Ensign, bedrock terrace	30	Poor	 	  Poor		  Poor	1
2911006	30	Droughty	0.00	Depth to bedrock	0.00	'	0.00
		Depth to bedrock		Wetness	0.00	Depth to bedrock	
	İ	Water erosion	0.99				
Nykanen, bedrock		 	 	 		 	
terrace	20	Poor	 	Poor		  Poor	
	i	Droughty	0.00	Depth to bedrock	0.00		0.00
		Depth to bedrock		Wetness	0.00	'	
		Too acid	0.50			Slope	0.37
	1	Water erosion	0.99	I	1	Rock fragments	0.88
	!	water erosion	0.33	!	!	Too acid	0.95

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit			Potential as sou of roadfill	rce	Potential as sou of topsoil	rce
		'	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
66F:			 				
Ruse, bedrock	İ		İ	İ	İ	İ	İ
terrace	40	Poor	ĺ	Poor	ĺ	Poor	İ
	ĺ	Droughty	0.00	Depth to bedrock	0.00	Wetness	0.00
	ĺ	Depth to bedrock	0.00	Wetness	0.00	Depth to bedrock	0.00
		Water erosion	0.90			Organic matter	0.78
		Carbonate content Too acid	0.92	 		content (low)	
Ensign, bedrock	į į	 	j I	 	į i	 	į į
terrace	30	Poor	İ	Poor	i	Poor	i
		Droughty	0.00	Depth to bedrock		Wetness	0.00
	İ	Depth to bedrock	!	Wetness	0.00	!	
	į į	Water erosion	0.99	 	İ	   	į
Nykanen, bedrock		 		 		 	
terrace	20		!	Poor		Poor	1000
		Droughty	0.00	Depth to bedrock	0.00	Wetness	0.00
	l I	Depth to bedrock Too acid	0.50	Wetness   Slope	0.00	Depth to bedrock Slope	0.00
	l I		0.99	probe	10.00	Rock fragments	0.88
						Too acid	0.95
68:		 	 	 		 	
Pits, quarry	100 	Not rated	 	Not rated 	 	Not rated 	
69B:	į		į	İ	į	İ	į
Escanaba	85	!		Good	ļ	Fair	
		!	0.00			Too sandy	0.14
			0.12			!	0.88
		content (low)		 		(rock fragments)	
	l I	-	0.14	 		 	
		Carbonate content					
71A:			 	 		 	
Evart	70	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
			0.12			Wetness	0.00
		content (low)	  0.99				
Sturgeon	20	Poor	i I	Poor	İ	Poor	İ
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Organic matter	0.88			Wetness	0.00
		content (low)	  0.92	 		 	
72E:			 	 		 	
Deerton, dissected	40	Poor		Poor		Poor	
		Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
		Wind erosion	0.00	Slope	0.18	Slope	0.00
		Droughty	0.00			Depth to bedrock	0.16
		Depth to bedrock	0.16			Too acid	0.76
		Too acid					

Table 14b.--Construction Materials--Continued

and soil name	Pct. of map unit	reclamation mater:		Potential as sour	rce	Potential as sou of topsoil	rce
	   	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
	[						
72E: Tokiahok, dissected	   30	  Poor	 	  Poor	l I	Poor	 
TONIUMON, GIBBOCCOG	30	Wind erosion	0.00	Depth to cemented	0.00		0.00
		Droughty	0.00	pan		Depth to cemented	
		Depth to cemented		: - <del>-</del>	0.18	pan	
	İ	pan	İ	<u> </u>	İ	Too sandy	0.36
	i	Too acid	0.20	İ	İ	Too acid	0.99
	į	Too sandy	0.36	İ	İ		İ
Total December 1		   December		   D = ===		   <b> </b>	
Trout Bay, dissected	15		!	Poor	!	Poor	10.00
		Depth to bedrock Too acid	0.84	Wetness	0.00		0.00
	l I	100 acid	<b>0.0</b> 1	Depth to bedrock Slope	0.98	Organic matter content (high)	10.00
		 	 	blobe	<b>0.</b> 50		0.00
					İ	Depth to bedrock	
	ĺ	İ	ĺ	İ			
72F:							
Deerton, dissected	40	!	!	Poor	1	Poor	
		Too sandy Wind erosion	0.00	Depth to bedrock	0.00	Slope   Too sandy	0.00
		Droughty	0.00	slope	<b>0.00</b>	Depth to bedrock	
	 	Depth to bedrock	0.16	I 	l I	-	0.76
		Too acid	0.50				
malada la alta de la contra d		 		 		   December	
Tokiahok, dissected	45	Wind erosion	0.00	Poor   Depth to cemented	   n	Poor   Slope	0.00
		Droughty	0.00	pan pan	<b>0.00</b>	Depth to cemented	
		Depth to cemented	!	: - <del>-</del>	0.00	pan	
	İ	pan	İ	<u> </u>	İ	Too sandy	0.36
	į	Too acid	0.20	İ	İ	Too acid	0.99
		Too sandy	0.36				
Trout Bay, dissected	   20	Poor	 	  Poor	 	Poor	
from Day, dissected	20	Depth to bedrock	0.00	Wetness	0.00		0.00
		Too acid	0.84	Depth to bedrock		-	0.00
	İ		İ	Slope	0.50	Organic matter	0.00
	İ		ĺ			content (high)	ĺ
					ļ	Depth to bedrock	0.00
76C:		 		 	 		l i
Garlic, dissected	   40	  Poor	l I	  Good	l I	Poor	
Garrie, dissected	10	Too sandy	0.00		l I		0.00
		Wind erosion	0.00		İ		
	İ	Organic matter	0.12		İ		i
	į	content (low)	j	İ	İ		İ
	İ	Too acid	0.50		ĺ		ĺ
		Droughty	0.97	!			
Blue Lake, dissected	30	Poor	 	  Good	 	  Fair	 
bide make, dissected	30 	Poor   Wind erosion	0.00	G000	l I	Too sandy	0.30
		Organic matter	0.12	! 	İ	Too sandy	0.88
			, <del></del>	! 			
	1	content (low)					
	 	content (low) Too sandy	0.30	 	 		

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	reclamation mater:		Potential as sour	rce	Potential as sou	rce
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
76C:	 	l	 	l I	 	 	
Voelker, dissected	20	Poor	 	Poor	 	Poor	i
-	i	!	0.00	Depth to cemented	0.00	Too sandy	0.00
	i	Wind erosion	0.00	pan	İ	Depth to cemented	0.00
	į	Droughty	0.00	į	j	pan	į
		Depth to cemented	0.00			Too acid	0.88
		pan					
		Too acid 	0.50 	 	 		 
76E:	į			į			į
Garlic, dissected	40	:	!	Fair		Poor	
		Too sandy	0.00	Slope	0.18	Too sandy	0.00
		1	0.00			Slope	0.00
		!	0.12	 	 	İ	
	 	content (low) Too acid	  0.50	 	l I	 	 
		Droughty	0.97	 	! 	 	i
	į		ĺ	į	į		į
Blue Lake, dissected	30	:	!	Fair		Poor	
		Wind erosion	0.00	Slope	0.18	Slope	0.00
	 	Organic matter content (low)	0.12	 	l I	Too sandy Too acid	0.30
		!	0.30	 	l I	100 acid	<b>0.</b> 00
		Too acid	0.50				i
Voelker, dissected		Poor	 	  Poor	 	Poor	
voerker, dissected	20	Too sandy	0.00	Depth to cemented	   n	Poor   Too sandy	0.00
		Wind erosion	0.00	pan	<b>0.00</b>	Depth to cemented	!
		!	0.00		0.18	pan	
	İ	Depth to cemented			ĺ	Slope	0.00
	İ	pan	İ		İ	Too acid	0.88
		Too acid	0.50				İ
76F:	 	 	 	 	 	 	 
Garlic, dissected	40	Poor	İ	Poor	İ	Poor	ĺ
	İ	Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		!	0.12	!			
		content (low)					
		Too acid	0.50		 	ĺ	
		Droughty 	0.97 	 	 		
Blue Lake, dissected	30	Poor	İ	Poor	İ	Poor	į
		·	0.00	Slope	0.00	Slope	0.00
			0.12			Too sandy	0.30
		content (low)				Too acid	0.88
	 	Too sandy Too acid	0.30  0.50	 	 	 	 
	İ			İ	İ		i
Voelker, dissected	20	!		Poor		Poor	
		Too sandy	0.00	Depth to cemented	0.00	-	0.00
		!	0.00	pan	0.00	Too sandy	0.00
	 	Droughty Depth to cemented	0.00	Slope	0.00	Depth to cemented pan	U.UU
		pan pan	0.00	 	 	pan   Too acid	  0.88
		Too acid	0.50		İ		
	1	<del>.</del>		1			1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source reclamation mater:		Potential as sou: of roadfill	rce	e   Potential as source   of topsoil		
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value	
77B:	 	l	 	 	l I	l	l i	
Garlic	40	Poor	 	Good	l I	Poor		
	i	Too sandy	0.00	İ	İ	!	0.00	
	i	Wind erosion	0.00	İ	İ	<u> </u>	i	
	İ	Organic matter	0.12		İ		i	
	İ	content (low)	İ	į	İ		İ	
		Too acid	0.50					
		Droughty	0.97	[				
_, _,								
Blue Lake	30	!		Good		Fair		
		Wind erosion	0.00	1	l I	-	0.30	
		Organic matter	0.12	 	l I	Too acid	0.88	
		content (low)	10 20	 	l I			
	 	Too sandy Too acid	0.30	 	l I	 		
	 	100 acid	0.30	 	l I	 		
Voelker	20	Poor	 	Poor	! 	Poor	i	
	i	Too sandy	0.00	Depth to cemented	0.00	Too sandy	0.00	
	i	Wind erosion	0.00	pan	j	Depth to cemented	1	
	İ	Droughty	0.00	į	İ	pan	İ	
		Depth to cemented	0.00			Too acid	0.88	
		pan						
		Too acid	0.50	!				
550								
77D: Garlic	   40	  Poor	l I	  Good	l I	  Poor		
Gallic	40	Too sandy	0.00	9000	l I	!	0.00	
		Wind erosion	0.00	 	 	_	0.84	
		Organic matter	0.12		! 			
	İ	content (low)	İ		İ		i	
	İ	Too acid	0.50	j	İ		İ	
		Droughty	0.97					
Blue Lake	30	'		Good		Fair		
		Wind erosion	0.00			<u>-</u>	0.30	
		Organic matter content (low)	0.12	 	l I	-	0.84	
	 	Too sandy	0.30	 	l I	100 acid	0.00	
		Too acid	0.50		 	 		
					İ		İ	
Voelker	20	Poor	ĺ	Poor		Poor	ĺ	
		Too sandy	0.00	Depth to cemented	0.00	Too sandy	0.00	
		Wind erosion	0.00	pan		Depth to cemented	0.00	
		Droughty	0.00			pan		
		Depth to cemented	0.00				0.84	
		pan	   0	 	 	Too acid	0.88	
	 	Too acid	0.50	 	l I	 	 	
77E:					İ			
Garlic	40	Poor	İ	Poor	İ	Poor	İ	
		Too sandy	0.00	Slope	0.00	Slope	0.00	
		Wind erosion	0.00			Too sandy	0.00	
		Organic matter	0.12					
		content (low)		[				
	1	Too acid	0.50	1	1	I	1	
	!	Droughty	0.97	1	!	I	1	

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater:		Potential as sou of roadfill	rce	Potential as sou of topsoil	rce
		Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
77E:							
Blue Lake	30	!		Poor		Poor	
		Wind erosion   Organic matter	0.00 0.12	Slope	0.00	Slope   Too sandy	0.00
		content (low)		 	i	Too acid	0.88
	İ	Too sandy	0.30		i		
		Too acid	0.50	!		!	ļ
Voelker	20	Poor	 	Poor	 	  Poor	 
VOCINCI	20	Too sandy	0.00	Depth to cemented	0.00	Slope	0.00
	İ	Wind erosion	0.00	pan		Too sandy	0.00
	i	Droughty	0.00	: -	0.00	Depth to cemented	0.00
	ĺ	Depth to cemented	0.00		ĺ	pan	ĺ
	ļ	pan				Too acid	0.88
		Too acid	0.50	 	 	 	
88:							
Cathro	55	Poor		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	!	0.00
		Organic matter	0.12			Organic matter	0.00
		content (low)				content (high)	
		Too acid Carbonate content	0.84	 		Hard to reclaim (rock fragments)	0.88
		carbonate content	0.32	 	 	(IOCK ITAGMENUS)	
Ensley	35	Poor	İ	Poor	İ	Poor	İ
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Organic matter	0.12		!		0.00
		content (low)	 	 	 	Hard to reclaim (rock fragments)	0.92
		 	 	 	 	(IOCK ITAGMENUS)	
93:	İ		ĺ		İ		İ
Tawas	70	Poor		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Organic matter content (low)	U.12 	 		Organic matter content (high)	10.00
		Too acid	0.50			Too acid	0.92
Deford	20	Poor   Too sandy		Poor   Wetness	:	Poor	
		Wind erosion	0.00	wetness	0.00	Too sandy Wetness	0.00
		Organic matter	0.12	 	i	Too acid	0.99
	į	content (low)	İ	İ	i		İ
	ļ	Too acid	0.50				
95B:		 	 	 	 	 	
Liminga	90	Poor		Good	i	Poor	
-	į	Too sandy	0.00	j	į	Too sandy	0.00
		Wind erosion	0.00			Too acid	0.12
		Organic matter	0.12	!			
		content (low)					ļ
		Too acid Droughty	0.50 0.99	 	 	 	l I
104C:							
Fence, dissected	90	•	   0 12	Fair	0 14	Fair	  0.14
	1	Organic matter content (low)	0.12	Wetness	0.14	Wetness	U.14
		Too acid	0.39	 	i	! 	
	İ	Water erosion	0.90	į	i	İ	İ
	I	I	I	I	I	I	1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as sou of roadfill	rce	Potential as sou of topsoil	ırce
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
109D:		 				 	
Rousseau	50	Poor	i	Good	i	Poor	i
	i	Too sandy	0.00	İ	i	Too sandy	0.00
	i	Wind erosion	0.00	İ	i	Slope	0.63
	i	Organic matter	0.12	İ	i	Too acid	0.98
	i	content (low)	1		i		i
	i	Too acid	0.54	İ	i	İ	i
	į	Droughty	0.80	İ	İ	İ	i
D				  Page			
Dawson	45	Fair		Poor		Poor	
		Organic matter	0.12	Wetness	0.00	Wetness	0.00
		content (low) Too acid	0.50			Organic matter	0.00
		Too acid	0.50			content (high) Too acid	0.00
		 				100 acid	0.00
109F:	į		İ	İ	i		i
Rousseau	55	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Too sandy	0.00
		Wind erosion	0.00			Slope	0.00
		Organic matter	0.12			Too acid	0.98
		content (low)					
		Too acid	0.54				
		Droughty 	0.80	 		 	
Dawson	40	Fair	j	Poor	i	Poor	j
		Organic matter	0.12	Wetness	0.00	Wetness	0.00
		content (low)				Organic matter	0.00
		Too acid	0.50			content (high)	
		l		l I		Too acid	0.00
125B:		 				 	
Stutts	65	Poor	j	Good	j	Poor	j
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter	0.12				
		content (low)			!		
		Too acid	0.50			  -	
Kalkaska	35	Poor		Good	i	Poor	
	i	Too sandy	0.00		i	Too sandy	0.00
	i	Wind erosion	0.00	İ	i	Too acid	0.50
	į	Organic matter	0.12	İ	į	İ	j
		content (low)					
		Droughty	0.44				
		Too acid	0.50				
125D:		 				 	1
Stutts	65	Poor		Good	i	Poor	1
	İ	Too sandy	0.00	İ	i	Too sandy	0.00
	İ	Wind erosion	0.00	İ	İ	Slope	0.63
		Organic matter	0.12				İ
		content (low)					
		Too acid	0.50				

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source reclamation mater:		Potential as sou: of roadfill	rce	Potential as sou of topsoil	rce
		Rating class and limiting features	Value	   Rating class and   limiting features	Value	Rating class and limiting features	Value
125D:							
Kalkaska	25	Poor	 	Good	l I	Poor	 
	i	Too sandy	0.00	İ	İ	Too sandy	0.00
	i	Wind erosion	0.00	į	İ	Too acid	0.50
	i	Organic matter	0.12		İ	Slope	0.63
	İ	content (low)	į	į	İ		İ
		Droughty	0.44				
		Too acid	0.50	!			
125E:		  -	 	 	 		 
Stutts	55	Poor	 	Poor	 	Poor	
	i	Too sandy	0.00	Slope	0.00	Slope	0.00
	į	Wind erosion	0.00	j	İ	Too sandy	0.00
	İ	Organic matter	0.12		ĺ		ĺ
		content (low)					
	ļ	Too acid	0.50		ļ		ļ
Kalkaska	45	Poor	 	  Poor	 	  Poor	 
Rainagha	13	Too sandy	0.00	Slope	0.00		0.00
	i	Wind erosion	0.00			Too sandy	0.00
	i	Organic matter	0.12		İ	Too acid	0.50
	İ	content (low)	İ	İ	İ		İ
		Droughty	0.44				
	ļ	Too acid	0.50				ļ
135B:		 	 	 	 		 
Munising, calcareous		 		 	 		
substratum	1	Poor	İ	Poor	İ	Poor	İ
	İ	Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Too acid	0.00	Depth to cemented	0.00	Depth to cemented	0.01
		Depth to cemented	0.01	pan		pan	
		pan			l I	Too acid	0.88
	 	Droughty 	0.01	 	 		 
Ensley	25	Poor	i	Poor	İ	Poor	İ
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Organic matter	0.12			Rock fragments	0.00
		content (low)	!				0.92
		 		 	 	(rock fragments)	
145C:		 		 	 		
Munising, dissected,	į		į	j	į		į
very stony	50	Poor		Poor		Poor	
		Droughty	0.00	Wetness	0.00	Wetness	0.00
	!	Depth to cemented	0.01	Depth to cemented	0.00	Depth to cemented	0.01
	ļ	pan		pan		pan	
		Too acid	0.12		 	Too sandy	0.20
		Too sandy	0.20	 	 	Too acid	0.59
Yalmer, dissected,	İ		<u>.</u>	j	İ		İ
very stony	35	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
	ļ	Droughty	0.00	Depth to cemented	0.00	Wetness	0.00
		Too acid	0.00	pan	ļ	Depth to cemented	0.10
		Depth to cemented	0.10			pan	  0.68
		pan	1		1	Too acid	68

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater:		Potential as sour of roadfill	rce	Potential as sou: of topsoil	rce
		Rating class and	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
146B:		 	 	 	 	 	 
Munising, stony	60	Poor	İ	Poor	İ	Poor	İ
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Droughty	0.00	Depth to cemented	0.00	Depth to cemented	0.01
		Depth to cemented	0.01	pan		pan	
		pan				· -	0.20
		Too acid Too sandy	0.12	  -	 	Too acid	0.59
		100 sandy 	0.20 	 	l I	 	
Skanee, stony	30	Poor	! 	Poor	! 	Poor	i
-	į	Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Droughty	0.00	Depth to cemented	0.00	Depth to cemented	0.00
		Depth to cemented	0.00	pan		pan	
		pan				Too acid	0.68
		Too acid	0.12	 	 	 	
147A:		 	 	 	i İ	 	i
Skanee, very stony	55	Poor	İ	Poor	j	Poor	i
	ĺ	Droughty	0.00	Wetness	0.00	Wetness	0.00
		Depth to cemented	0.00	Depth to cemented	0.00	Depth to cemented	0.00
		pan		pan	ļ	pan	
		Too acid	0.12	 	 	Too acid	0.68
Gay, very stony	35	  Fair	 	Poor	l I	Poor	
	İ	Organic matter	0.12	Wetness	0.00	Wetness	0.00
	ĺ	content (low)			ĺ		İ
		Too acid	0.50				
148B:		 	 	  -	 	  -	
Shoepac	70	Poor	 	  Fair	l I	  Fair	
		Too acid	0.00	Wetness	0.14	!	0.10
	į	Too sandy	0.10	İ	j	Wetness	0.14
		Organic matter	0.12			Rock fragments	0.88
		content (low)				!	0.92
						(rock fragments)	
		 	 	 	l I	Too acid	0.98
Ensley	20	Poor	! 	Poor	! 	Poor	i
	İ	Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Organic matter	0.12			,	0.00
		content (low)	 		 	Hard to reclaim	0.92
		 	 	 	l I	(rock fragments)	 
155A:		 	 	! 	 	 	i
Zeba, very stony	55	Fair	j	Poor	j	Poor	į
		Organic matter	0.12	Wetness	0.00	Wetness	0.00
		content (low)		Depth to bedrock	0.00	:	:
		Droughty	0.47			!	0.98
	 	Too acid Depth to bedrock	0.50	 	 	Rock fragments	0.99
		Sopon to bearook					i
Jacobsville, very	İ	İ	İ	İ	İ	İ	į
stony	30	'		Poor		Poor	
		Too acid	0.61	Wetness	0.00	!	0.00
		Organic matter	0.88	Depth to bedrock	U.OO	Depth to bedrock	U.93
		content (low) Depth to bedrock	  0.93	 	 	 	1
	1	Dopon do Doutock	, , , , , ,	I	1	I	T.

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source   reclamation mater: 		Potential as sou: of roadfill	rce	Potential as sour of topsoil	rce
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
157B:	 		 	 	 	 	 
Reade	45	Fair		Poor		Poor	İ
		Droughty	0.12	1	0.00	Wetness	0.00
		Organic matter	0.12	Depth to bedrock	0.00	-	
	 	content (low) Depth to bedrock	  0.35	 	l I	Rock fragments	0.50
		Too acid	0.50				
Nahma	40	Poor	 	Poor	 	  Poor	 
Haima	10	Wind erosion	0.00	Wetness	0.00	Wetness	0.00
	İ	Depth to bedrock	!	Depth to bedrock		Organic matter	0.00
	İ	Water erosion	0.90	İ		content (high)	İ
	 	Carbonate content	0.92	l I	 	Depth to bedrock	0.54
158C:							į
Munising, dissected,				-			
stony	50	Poor   Wind erosion	  0.00	Poor   Wetness	  0.00	Poor   Wetness	0.00
	 	Droughty	0.00	Depth to cemented		Depth to cemented	1
		Depth to cemented	'	pan		pan	
	İ	pan	ĺ	İ		Too sandy	0.20
		Too acid	0.12	!		Too acid	0.59
		Too sandy	0.20	 	 	 	 
Abbaye, dissected,			į		İ		
stony	35	!		Poor	!	Poor	
		Droughty Too acid	0.44	Wetness   Depth to bedrock	0.00	Wetness Depth to bedrock	0.00
		Depth to bedrock		Depth to Dedict.		Depth to Dedrock	
160B:		 	 				
Paquin	55	Poor	 	Poor	l İ	Poor	
•		Too sandy	0.00	Depth to cemented		Too sandy	0.00
	İ	Wind erosion	0.00	pan		Depth to cemented	0.00
		Droughty	0.00	Wetness	0.53	pan	!
		Depth to cemented	0.00			Wetness	0.53
	 	pan Too acid	  0.50	 	 	Too acid 	0.92
			į				į
Finch	45	Poor   Too sandy	  0.00	Poor   Wetness	  0.00	Poor   Too sandy	0.00
		Wind erosion	0.00	Depth to cemented		· -	0.00
		Droughty	0.00	pan		Depth to cemented	
	İ	Depth to cemented	0.00	į -	j	pan	į
		pan				Too acid	0.88
		Too acid 	0.08 	 	 		 
161B:		Poor		Poor		Poor	
Yellowdog, stony	50	Poor   Too sandy	0.00	Poor   Depth to bedrock		Poor   Too sandy	0.00
		Wind erosion	0.00	Cobble content	0.11	Rock fragments	0.00
	į	Droughty	0.00	į	İ	Depth to bedrock	:
		Cobble content	0.50	[		Too acid	0.88
		Too acid	0.50				
	 	Depth to bedrock		 	 	 	
	 	Organic matter content (low)	0.88 	 	l I	 	1
	1	1 201120110 (1011)	! !	I I		I I	1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as sou of roadfill	rce	Potential as source   of topsoil 		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
161B:	 	 		 		 		
Buckroe, stony	40     	Poor   Too sandy   Wind erosion   Droughty	  0.00  0.00  0.00	Poor   Depth to bedrock   	  0.00 	Poor   Too sandy   Rock fragments   Depth to bedrock	  0.00  0.00  0.00	
	       	Depth to bedrock   Too acid   Organic matter   content (low)	0.00  0.50  0.88 	 	       	Too acid     	0.76       	
165B:	   EE	Poor	į	    Poor	į	    Poor	į	
Chocolay, very stony	33	Droughty	0.00	Wetness	0.00	Wetness	0.00	
	į	Stone content	0.00	Depth to bedrock	0.00	Rock fragments	0.00	
	   	Depth to bedrock   Too acid   Cobble content	0.29  0.50  0.98	Stone content Cobble content	0.11  0.92 	Depth to bedrock   Too acid 	0.29  0.99 	
Waiska, very stony	   30	  Poor		  Good		  Poor		
	į	Too sandy	0.00	İ	į	Too sandy	0.00	
		Droughty	0.00			Rock fragments	0.00	
	   	Organic matter   content (low)   Too acid	0.12    0.50	   	   	Hard to reclaim   (rock fragments)   Too acid	0.00    0.95	
166:		 		 		 		
Skandia	85	Fair	j	Poor	į	Poor	į	
	       	Depth to bedrock   Too acid   	0.21  0.50   	Wetness   Depth to bedrock   	0.00  0.00 	Wetness   Organic matter   content (high)   Depth to bedrock   Too acid	0.00  0.00    0.21  0.24	
167:		 		 		 		
Skandia, stony	55	Fair		Poor	i	Poor		
	       	Depth to bedrock   Too acid   	0.21  0.50   	Wetness   Depth to bedrock   	0.00  0.00 	Wetness   Organic matter   content (high)   Depth to bedrock   Too acid	0.00  0.00    0.21  0.24	
Jacobsville, stony	   35	  Poor	 	  Poor		  Poor		
	       	Wind erosion   Too acid   Organic matter   content (low)   Depth to bedrock	0.00  0.61  0.88    0.93	Wetness   Depth to bedrock   	0.00  0.00   	•	0.00  0.93   	
170B:	 	[ 		[ 		[ 		
Chocolay, very stony	90	·	:	Poor		Poor		
	 	Droughty Stone content	0.00	Wetness Depth to bedrock	0.00	!	0.00	
	   	Stone content   Depth to bedrock   Too acid   Cobble content	:	Depth to bedrock   Stone content   Cobble content	0.00			

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	į		Potential as sour	rce	Potential as sour	rce
		Rating class and	Value	Rating class and limiting features	Value	Rating class and	Value
171B:			 				
Paavola, very stony	90	Poor	 	Poor		  Poor	
	İ	Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Droughty	0.00	Depth to cemented	0.00	Wetness	0.00
		Too acid	0.46	pan		Rock fragments	0.00
		Depth to cemented pan	0.46 	Cobble content	0.99 	Depth to cemented pan	0.46
172D:		 	 	 	 	 	 
Buckroe, very	i		! 		i		i
bouldery	70	Poor	İ	Poor	i	Poor	İ
_	İ	Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
	İ	Droughty	0.00			Rock fragments	0.00
		Depth to bedrock	0.00			Depth to bedrock	0.00
		Too acid	0.50			Slope	0.00
		Organic matter content (low)	0.88	 	 	Too acid 	0.76
Rock outcrop	   15	  Not rated	   	    Not rated		    Not rated	;   
172F:		 	 	 		 	 
Buckroe, very	i	İ	İ	i			i
bouldery	70	Poor	İ	Poor	İ	Poor	İ
	j	Too sandy	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Slope	0.00	Too sandy	0.00
		Depth to bedrock	0.00			Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	
		Organic matter content (low)	0.88 			Too acid 	0.76 
Rock outcrop	15	  Not rated	 	  Not rated		  Not rated	 
150							
176B: Croswell		   Doom	 	  Fair		  Poor	
Closwell	50	Too sandy	0.00	!	0.53	Too sandy	0.00
		Wind erosion	0.00	wechess	0.55	Wetness	0.53
	-	Organic matter	0.12			 	
		content (low)					
		Too acid Droughty	0.50  0.99	 		 	 
Kinross		Poor	 	Poor		  Poor	
	10	Too sandy	0.00		0.00	Too sandy	0.00
	1	Wind erosion	0.00	1		Wetness	0.00
		Organic matter	0.12				
	i	content (low)	İ	i			i
	İ	Too acid	0.50	į	i		İ
	į	Droughty	0.99			  -	į
181E:		 	 	 		 	
Frohling, dissected,		!		!			!
stony	60	•		Poor		Poor	!
		Depth to cemented	0.00	Depth to cemented	0.00	Depth to cemented	0.00
		pan		pan		pan	
		Droughty	0.00	Slope	0.18	Slope	0.00
	1	Too acid	0.50	I I		Too acid	0.92
		Too sandy	0.99	I I		Rock fragments Too sandy	0.95
	1	I	I	1		100 Bandy	10.00

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater:		Potential as sou: of roadfill	rce	Potential as sour of topsoil	rce
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
181E:		 	   	 	   	 	
Tokiahok, dissected, stony	:	Poor	l I	Poor	l I	Poor	
scony	1 30	!	0.00	Depth to cemented			0.00
	l I	Droughty Depth to cemented		pan	10.00	Depth to cemented	!
	l I	pan pan	0.10	Slope	0.18	pan pan	10.10
	l I	Too acid	0.20	Slope	0.16 	-	0.36
		Too sandy	0.36			Too acid	0.99
185B:	 	 	 	 	 	 	
McMaster	90	Poor		Fair		Poor	
		Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Droughty	0.09	Cobble content	0.97	Hard to reclaim	0.00
		Organic matter	0.12			(rock fragments)	
		content (low)				Rock fragments	0.00
		Too acid	0.50	l I	 	Wetness	0.53
186B:							į
Chatham, stony	85	!		Fair		Poor	
		Stone content	0.00	Stone content	0.74	l .	0.00
		Organic matter	0.12			(rock fragments)	
		content (low)	  0.61	1		Rock fragments	0.50
		Too acid Carbonate content		 	 	 	
	 	Carbonate content	0.92	 	 	 	
186D: Chatham, stony	   85	Poor	 	  Fair	 	  Poor	
,		Stone content	0.00	Stone content	0.74		0.00
	i	Organic matter	0.12			(rock fragments)	
	i	content (low)	İ	į	İ	Rock fragments	0.50
	İ	Too acid	0.61	į	İ	Slope	0.63
		Carbonate content	0.92		 	 	
187B:							
Reade	85	Fair		Poor		Poor	
		Droughty	0.12	Wetness	0.00	!	0.00
		Organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	1
		content (low)			 	Rock fragments	0.50
	 	Depth to bedrock Too acid	0.50	 	l I		
		100 acid 	0.50	 	 	 	
188B: Eben, stony	   85	  Poor	 	  Poor	 	  Poor	
		Stone content	0.00	Stone content	0.00		0.00
	i	Droughty	0.11	Cobble content	0.50	(rock fragments)	
	i	Organic matter	0.12			Rock fragments	0.00
	i	content (low)		į	İ		
	į	Carbonate content	0.68	į	İ		į
188D:	 	[ 	 	 	 	 	
Eben, stony	90	Poor		Poor		Poor	
		Stone content	0.00	Stone content	0.00	Hard to reclaim	0.00
				Cabble sembers	0 50		1
		Droughty	0.11	Cobble content	0.50	(rock fragments)	1
	 	Organic matter	0.11	Cobbie Content	0.50	Rock fragments	0.00
	   		0.12	Cobbie content	0.50   	_	1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source reclamation mater:		Potential as sou of roadfill	rce	Potential as sou of topsoil	rce
		Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
188E: Eben, stony	     90	    Poor   Stone content	      0.00	    Poor   Slope		    Poor   Slope	      0.00
	     	Droughty   Organic matter   content (low)   Carbonate content	0.11	Stone content   Cobble content	0.00	Hard to reclaim (rock fragments) Rock fragments	0.00
191B:		 	 	 		 	
Ruse	50       	Poor   Droughty   Depth to bedrock   Carbonate content 		Poor   Depth to bedrock   Wetness	0.00	Poor Wetness Depth to bedrock Organic matter content (low) Rock fragments	  0.00  0.00  0.78    0.97
Ensign	   40       	Poor   Depth to bedrock   Droughty   Organic matter   content (low)   Too acid	  0.00  0.00  0.88    0.99	  Poor   Depth to bedrock   Wetness 	  0.00  0.00   	  Poor   Wetness   Depth to bedrock   	  0.00  0.00   
197B:			 				
Shoepac	50           	Too acid   Too sandy   Organic matter   content (low)	  0.00  0.10  0.12 	Fair   Wetness	  0.14       	Fair   Too sandy   Wetness   Rock fragments   Hard to reclaim   (rock fragments)   Too acid	  0.10  0.14  0.88  0.92    0.98
Trenary	40       	  Fair   Organic matter   content (low)   Too acid	  0.12    0.50	Good    -     		Good   Good 	       
198B: Shoepac	60	Poor	 	  Fair		  Fair	
		Too acid Too sandy Organic matter content (low)	0.00	Wetness	0.14	Too sandy Wetness Rock fragments Hard to reclaim (rock fragments) Too acid	0.10  0.14  0.88  0.92 
Reade	   30       	Fair   Droughty   Organic matter   content (low)   Depth to bedrock   Too acid	  0.12  0.12    0.35  0.50	   Poor   Wetness   Depth to bedrock   	0.00	Poor   Wetness   Depth to bedrock   Rock fragments	  0.00  0.35  0.50
200A:			<u> </u>				
Charlevoix	55       	Fair   Organic matter   content (low)   Too acid   Carbonate content	  0.12    0.50  0.92	Poor   Wetness   	  0.00   	Poor   Wetness   Rock fragments   Hard to reclaim   (rock fragments)	  0.00  0.24  0.82

Table 14b.--Construction Materials--Continued

and soil name	Pct. of map unit	reclamation mater:		Potential as sous	rce	Potential as sou of topsoil	rce
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
200A:			 				
Ensley	   30	Poor	 	Poor	l I	Poor	I I
Ensiey	30	Wind erosion	0.00	Wetness	0.00		0.00
i	 	Organic matter	0.12	Wedness		Rock fragments	0.00
	   	content (low)		 	   	-	0.92
202B:	 	 	 	 	 	_	į į
Sauxhead, very stony	85	Poor		Poor		Poor	
I		Droughty	0.00	Depth to bedrock	0.00	Wetness	0.00
		Depth to bedrock		Wetness	0.00	Rock fragments	0.00
		Too sandy	0.20			Depth to bedrock	1
ļ	 	Too acid Organic matter	0.50  0.88			Too sandy Too acid	0.20
	   	content (low)	<b>0.00</b> 	 	   	100 acid	
206B:   Traunik	     00	    Poor	   	    Fair	   	    Poor	
iraunik	90 	Too sandy	0.00	Cobble content	0.89	Too sandy	0.00
i	 	Organic matter	0.12	CODDIE CONCENT	0.03	Rock fragments	0.00
i		content (low)			İ	_	0.00
į	İ	Droughty	0.17	İ	į	(rock fragments)	İ
]	 	Too acid 	0.50	 	 		
206D:   Traunik	     90	    Poor	   	    Fair	İ I	Poor	į I
i		Too sandy	0.00	Cobble content	0.89	Too sandy	0.00
į	İ	Organic matter	0.12	j	į	Rock fragments	0.00
I		content (low)				Hard to reclaim	0.00
I		Droughty	0.17			(rock fragments)	
	 	Too acid 	0.50 	 	 	Slope	0.84
211B:   Munising	   55	  Poor	 	  Poor	 	Poor	
Ī	İ	Wind erosion	0.00	Wetness	0.00	Wetness	0.00
I		Droughty	0.00	Depth to cemented	0.00	Depth to cemented	0.01
I		Depth to cemented	0.01	pan		pan	
		pan				Too sandy	0.20
	 	Too acid Too sandy	0.12	 	 	Too acid	0.59
Abbaye	   35	  Fair	 	  Poor	 	  Poor	
		Droughty	0.44		0.00		0.00
	 	Too acid Depth to bedrock	0.50	Depth to bedrock	0.00	Depth to bedrock	0.71
214B:	 	  -	 	 	 		
Kalkaska	60	!	!	Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00  0.18	 	[ [		
	 	Organic matter	<b>0.1</b> 8	! !	 		i
	   	content (low) Too acid	    0.50	 	   		

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as sourc reclamation mater		Potential as sou of roadfill	rce	Potential as sou of topsoil	ırce
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
214B:	 			 	 		
Blue Lake	30	Poor	į	Good	į	Fair	İ
İ		Wind erosion	0.00		İ	Too sandy	0.30
		Organic matter	0.12			Too acid	0.88
		content (low)					
		Too sandy	0.30				
		Too acid	0.50				
214D:	 			 			
Kalkaska	55	Poor	i	Good	i	Poor	i
		Too sandy	0.00		İ	Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter	0.18				
		content (low)					
		Too acid	0.50				
		Droughty	0.77				
Blue Lake	   35	  Poor		Good		  Fair	
i	İ	Wind erosion	0.00	İ	i	Too sandy	0.30
	İ	Organic matter	0.12	j	į	Slope	0.63
İ		content (low)	İ		İ	Too acid	0.88
		Too sandy	0.30				
		Too acid	0.50				
214E:	 	 		 	 	 	
Kalkaska	55	Poor	i	Poor	i	Poor	i
i	İ	Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00		İ	Too sandy	0.00
		Organic matter	0.18				
		content (low)					
		Too acid	0.50				
		Droughty	0.77				
Blue Lake	   35	  Poor		Poor		  Poor	
		Wind erosion	0.00	Slope	0.00	Slope	0.00
i	İ	Organic matter	0.12	i -	i	Too sandy	0.30
İ		content (low)	İ		İ	Too acid	0.88
		Too sandy	0.30				
		Too acid	0.50				
221B:	 	 		 			
Jeske	40	Poor	İ	Poor	i	Poor	i
j		Too sandy	0.00	Depth to bedrock		'	0.00
j		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
j		Droughty	0.00			Depth to bedrock	0.01
		Depth to bedrock	0.01				
		Organic matter	0.12				
		content (low)		!	[		!
	 	Too acid	0.50	 		 	
Au Train	30	  Poor		Poor		  Poor	
		Too sandy	0.00	Depth to bedrock		Too sandy	0.00
	İ	Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Droughty	0.00			Depth to bedrock	0.00
		Droughty Depth to bedrock		 		Depth to bedrock	0.00

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as sou of roadfill	rce	Potential as sou of topsoil	irce
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
221B:		 				 	
Gongeau	20	Poor		Poor		Poor	
		Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Depth to bedrock	0.00			Depth to bedrock	0.00
		Droughty	0.00				
		Organic matter	0.12				
		content (low)					
		Too acid	0.50			 	
225B:						 	i
Cusino	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Rock fragments	0.88
		Organic matter	0.12			Too acid	0.98
		content (low)					
		Droughty	0.24				
		Too acid	0.50			l	
225D:							
Cusino	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter	0.12			Rock fragments	0.88
		content (low)				Too acid	0.98
		Droughty	0.24				
		Too acid	0.50			 	
226B:	İ					İ	İ
Kalkaska	50	Poor		Good	ļ	Poor	!
	!	Too sandy	0.00		ļ	Too sandy	0.00
	!	Wind erosion	0.00		ļ		!
	ļ	Organic matter	0.18	!		!	!
		content (low)		!			!
		Too acid	0.50				1
		Droughty 	0.77			 	
Cusino	45	Poor	i	Good	i	Poor	i
	İ	Too sandy	0.00	İ	İ	Too sandy	0.00
	İ	Wind erosion	0.00		İ	Rock fragments	0.88
		Organic matter	0.12			Too acid	0.98
		content (low)					
		Droughty	0.24				
		Too acid	0.50				
226D:		 				 	
Kalkaska	50	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
	I	Wind erosion	0.00			Slope	0.63
		Organic matter	0.18				
		Organic matter content (low)	0.18	 		 	
	     		0.18    0.50  0.77	   		  - 	   

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	Potential as source reclamation mater		Potential as sou of roadfill	rce	Potential as sou of topsoil	irce
	unit						
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
226D:		 				 	
Cusino	45	Poor		Good		Poor	i
		Too sandy	0.00		i	Too sandy	0.00
	i	Wind erosion	0.00		i	Slope	0.63
	i	Organic matter	0.12	İ	İ	Rock fragments	0.88
	į	content (low)	İ	İ	į	Too acid	0.98
		Droughty	0.24				
		Too acid	0.50				
226E:		 		l I		  -	
Kalkaska	50	Poor		Poor		Poor	
	i	Too sandy	0.00	Slope	0.00	•	0.00
	i	Wind erosion	0.00	İ	i	Too sandy	0.00
	İ	Organic matter	0.18		İ		İ
		content (low)					
		Too acid	0.50				
		Droughty	0.77				ļ
Cusino	1 40	  Poor		  Poor		  Poor	
cusino	1 40	Too sandy	0.00	Slope	0.00	•	0.00
	i	Wind erosion	0.00	blope		Too sandy	0.00
	i	Organic matter	0.12		i	Rock fragments	0.88
	i	content (low)	İ	İ	İ	Too acid	0.98
	İ	Droughty	0.24		İ		İ
		Too acid	0.50	!	[	!	!
226F:		 		l I		  -	
Kalkaska	50	  Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
	i	Wind erosion	0.00			Too sandy	0.00
	i	Organic matter	0.18	İ	İ	i -	i
		content (low)					
		Too acid	0.50				
		Droughty	0.77				
Cusino	35	Poor	l	Poor		  Poor	
042110		Too sandy	0.00	Slope	0.00	!	0.00
	i	Wind erosion	0.00			Too sandy	0.00
	į	Organic matter	0.12	İ	į	Rock fragments	0.88
		content (low)				Too acid	0.98
		Droughty	0.24				
		Too acid	0.50				
227A:		 		 		 	
Halfaday	90	Poor	İ	Fair	i	Poor	i
	į	Too sandy	0.00	Wetness	0.53	Too sandy	0.00
		Wind erosion	0.00			Wetness	0.53
		Organic matter	0.12			Too acid	0.76
	!	content (low)					
		Too acid	0.50			 	
		Droughty 					1
232B:	İ	İ	İ	İ	İ	İ	ĺ
Shelldrake	90	1		Good	[	Poor	!
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Too acid	0.24
		Organic matter	0.12	 	1	 	1
	I I	content (low)	0.50	I I	1	 	1
		Droughty	0.62	 		I 	
	!		10.02	!	1	!	1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as sou of roadfill	rce	Potential as sou of topsoil	rce
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
233B:		 		 		 	
Abbaye, very stony	50	Fair		Poor	i	Poor	i
	İ	Droughty	0.44	Wetness	0.00	Wetness	0.00
		Too acid	0.50	Depth to bedrock	0.00	Depth to bedrock	0.71
		Depth to bedrock	0.71	 		l	
Zeba, very stony	35	  Fair		Poor		  Poor	
	İ	Organic matter	0.12	Wetness	0.00	Wetness	0.00
	İ	content (low)	İ	Depth to bedrock	0.00	Depth to bedrock	0.79
		Droughty	0.47			Too acid	0.98
		Too acid	0.50			Rock fragments	0.99
		Depth to bedrock	0.79				
234A:	 			 			
Levasseur, very	į		İ	İ	İ		İ
stony	55	Poor	!	Poor	!	Poor	
		Too sandy	0.00	Depth to bedrock	1	Too sandy	0.00
		Droughty	0.00	Wetness	0.00	Wetness	0.00
		Depth to bedrock	:			Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	1
	 	Cobble content Stone content	0.61 0.93	 		Too acid 	0.12
	į		į	İ	į		į
Burt, very stony	35		!	Poor	!	Poor	
		Too sandy	0.00	Depth to bedrock		Too sandy	0.00
		Droughty	0.00	Wetness	0.00	Wetness	0.00
	 	Depth to bedrock Organic matter	0.00	 		Depth to bedrock	10.00
	l I	content (low)	0.12	 	i	 	
		Too acid	0.50				
235B:							
Sauxhead, very stony	60	  Poor		  Poor		  Poor	
	İ	Droughty	0.00	Depth to bedrock	0.00	Wetness	0.00
	İ	Depth to bedrock	0.00	Wetness	0.00	Rock fragments	0.00
		Too sandy	0.20			Depth to bedrock	0.00
		Too acid	0.50			Too sandy	0.20
		Organic matter	0.88			Too acid	0.95
	 	content (low)		 		 	
Burt, very stony	30	Poor	İ	Poor	İ	Poor	į
		Too sandy	0.00	Depth to bedrock		-	0.00
		Droughty	0.00	Wetness	0.00	Wetness	0.00
		Depth to bedrock	0.00			Depth to bedrock	0.00
		Organic matter	0.12				
		content (low)		 		l I	
		100 acid	0.50 	[ 		[ 	
236B:	į		į		į		į
Waiska, extremely							1
bouldery	85	Poor		Good		Poor	ļ
		Too sandy	0.00		ļ	Too sandy	0.00
		Droughty	0.00		ļ	Rock fragments	0.00
		Organic matter	0.12			Hard to reclaim	0.00
		Organic matter   content (low)   Too acid	0.12    0.50	 		Hard to reclaim   (rock fragments)   Too acid	1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source   reclamation mater: 		Potential as sou of roadfill	rce	Potential as sou of topsoil	rce
		Rating class and	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
236D:		]	 	 		 	
Waiska, extremely			 		i	 	i
bouldery	85	Poor	İ	Good	i	Poor	i
	İ	Too sandy	0.00	İ	İ	Too sandy	0.00
	ĺ	Droughty	0.00		İ	Rock fragments	0.00
		Organic matter	0.12			1	0.00
		content (low)				(rock fragments)	
		Too acid	0.50	 		Slope Too acid	0.84
237B:		   Dane					
Chatham	65	!	  0.00	Fair   Stone content	0.74	Poor   Hard to reclaim	0.00
		Organic matter	0.12	Scone content	0.74	(rock fragments)	
	İ	content (low)			i		0.50
	İ	Too acid	0.61		i	İ	i
		Carbonate content	0.92	!	1	!	
Davies	20	Poor	 	Poor		  Poor	
Davies	20	Too sandy	0.00	Wetness	0.00	!	0.00
	i	Organic matter	0.12	Cobble content	0.06	· -	0.00
	İ	content (low)	j	j	j	Rock fragments	0.00
		Droughty	0.32			Hard to reclaim	0.00
		!	0.68		!	(rock fragments)	!
		Cobble content	0.79 	 		 	
239B:	İ						İ
Longrie	50	Fair	!	Poor		Fair	
		!	0.74	Depth to bedrock	0.00	Depth to bedrock	0.93
		Droughty Carbonate content	0.81	 		 	
		Depth to bedrock		 	i	 	1
	į				i		İ
Shingleton	40	!	!	Poor		Poor	
		Wind erosion	0.00	Depth to bedrock	0.00		
		Droughty Depth to bedrock	0.00	 		Too sandy Too acid	0.38
		Too sandy	0.38	 	i	100 acid	0.33
	į	-	0.50	İ	i	İ	İ
2400							
240F: Trout Bay	30	  Poor	 	  Poor		  Poor	
•	İ	Depth to bedrock	0.00	Wetness	0.00	Wetness	0.00
	ĺ	Too acid	0.84	Depth to bedrock	0.00	Organic matter	0.00
				Slope	0.98	content (high)	!
		l				Slope	0.00
		[ 	 	 		Depth to bedrock	
Gongeau	25	Poor		Poor	İ	Poor	İ
		Too sandy	0.00	Depth to bedrock	1	Too sandy	0.00
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		-	0.00	 		Depth to bedrock	0.00
	 	Droughty Organic matter	0.00	 		 	1
		content (low)			i		
	İ	Too acid	0.50	İ	İ	İ	İ

Table 14b.--Construction Materials--Continued

Map symbol and soil name	of map	Potential as sourc		Potential as sou of roadfill	rce	Potential as sou of topsoil	irce
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
240F: Shingleton	   20       	  Poor   Wind erosion   Droughty   Depth to bedrock   Too sandy   Too acid	    0.00  0.00  0.00  0.38  0.50	  Poor   Depth to bedrock   Slope 	1	  Poor   Slope   Depth to bedrock   Too sandy   Too acid	  0.00  0.00  0.38  0.59
Rock outcrop	15	  Not rated	į Į	  Not rated	į Į	  Not rated	İ
241:		 		l I		 	
Cathro	55     	  Poor   Wind erosion   Too acid 	  0.00  0.95	  Poor   Wetness 	0.00	  Poor   Wetness   Organic matter   content (high)	0.00
Gay	   35     	  Fair   Organic matter   content (low)   Too acid	  0.12    0.50	  Poor   Wetness   	  0.00 	  Poor   Wetness   	0.00
242B:							
Kalkaska, severely		 		 		 	l
burned	95	Poor		Good		Poor	i
	       	Too sandy Wind erosion Organic matter content (low) Too acid Droughty	0.00  0.00  0.18    0.50  0.77	 	         	Too sandy	0.00       
242D:		 		 		 	
Kalkaska, severely					i		i
burned	95	Poor	i	Good	i	Poor	i
	İ	Too sandy	0.00		İ	Too sandy	0.00
	   	Wind erosion   Organic matter   content (low)	0.00  0.18	 	   	Slope   	0.63
	į	Too acid	0.50	į	į	į	į
		Droughty	0.77	 		 	
242F:	i		İ		i		i
Kalkaska, severely	j		İ		İ		j
burned	90	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00		!	Too sandy	0.00
		Organic matter	0.18				
		content (low)					
		Too acid Droughty	0.50			 	
	į	į	İ	į	į	İ	į
243:							
Markey	95	•		Poor		Poor	
		Too sandy Wind erosion	0.00	Wetness	0.00	· -	0.00
		Wind erosion   Organic matter	0.00	I I	1	Wetness	0.00
		content (low)		 	1	 	
		Too acid	0.50		i	! 	i
	1	1 TOO ACIG	10.50	1	1	1	1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source reclamation mater:		Potential as sou of roadfill	rce	Potential as sou of topsoil	rce
		·	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
245B:							
Trout Bay	40	Poor	 	Poor	l	Poor	
	i	Depth to bedrock	0.00	Wetness	0.00	Wetness	0.00
	i		0.84	Depth to bedrock	0.00	Organic matter	0.00
	ĺ		ĺ		ĺ	content (high)	İ
				!	ļ	Depth to bedrock	0.00
T		   G 4				   D = ===	
Lupton	30	Good		Poor   Wetness	0.00	Poor   Wetness	0.00
		 	 	wechess	1	Organic matter	0.00
	i		i		i	content (high)	
	İ	İ	İ	į	İ	İ	İ
Gongeau	20	:		Poor		Poor	
		Too sandy	0.00	Depth to bedrock		Too sandy	0.00
		!	0.00	Wetness	0.00	Wetness	0.00
		Depth to bedrock	0.00			Depth to bedrock	0.00
	I I	Droughty Organic matter	0.12	 		 	
		content (low)	0.12	 		 	
	İ	Too acid	0.50		i		i
	İ	İ	İ	į	İ	İ	İ
246B:					ļ		
Garlic	90	!	0.00	Good		Poor	0.00
		Too sandy Wind erosion	0.00	 		Too sandy	10.00
		Organic matter	0.12	 		 	
		content (low)			i		
	i	Too acid	0.50		i		i
	į	Droughty	0.97	į	İ		İ
0.4.672						1	
246D: Garlic	90	  Poor	 	  Good		  Poor	
341113		Too sandy	0.00		i	Too sandy	0.00
	i	Wind erosion	0.00		i	Slope	0.63
	i	Organic matter	0.12	İ	İ		İ
	į	content (low)	į	j	į		İ
		Too acid	0.50				
		Droughty	0.97		ļ		
246E:		 	 	 		 	
Garlic	90	Poor	İ	Poor	į	Poor	i
	İ	Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter	0.12				
	!	content (low)					
		Too acid	0.50	 		 	
		Droughty 	0.97 	 		[ 	
248B:	İ	İ	į	İ	İ	İ	į
Escanaba	50	'		Good		Fair	
	ļ	Wind erosion	0.00		ļ	Too sandy	0.14
		Organic matter	0.12		ļ	Hard to reclaim	0.88
		content (low)			ļ	(rock fragments)	
		Too sandy	0.14				
		Too acid	0.61	 		 	1
	1	Carbonate content	0.92	I	1	l	1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct.   of  map  unit	Potential as source of reclamation material		Potential as source   of roadfill		Potential as source   of topsoil 	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
248B:		 	 	 		 	 
Greylock	   40 	  Fair   Organic matter	    0.12	  Good 		  Good 	İ
	   	content (low) Too acid Carbonate content	0.50	 		 	
248D:						!   	
Escanaba	   50	  Poor	 	  Good		  Fair	
	   	Wind erosion   Organic matter   content (low)	0.00	 	   	Too sandy   Slope   Hard to reclaim	0.14  0.63  0.88
	   	Too sandy Too acid	0.14	   		(rock fragments)	
	 	Carbonate content	0.92 	 		 	
Greylock	40   	Fair   Organic matter   content (low)	  0.12 	Good   	   	Fair   Slope 	0.63
	<u> </u> 	Too acid Carbonate content	0.50	 	į Į		į Į
248E:	 	 	 	 		 	
Escanaba	50 	Poor   Wind erosion	0.00	Poor   Slope	0.00	Poor   Slope	0.00
	   	Organic matter   content (low)   Too sandy	0.12    0.14	   	   	· -	0.14
		Too acid Carbonate content	0.61		į Į		į Į
Greylock	   40 	  Fair   Organic matter	    0.12	  Poor   Slope	    0.00	  Poor   Slope	    0.00
		content (low) Too acid	0.50	 	į Į	-   	İ
		Carbonate content	0.92				
249B: Sauxhead	   55	  Poor	 	  Poor		  Poor	
	         	Droughty Depth to bedrock Too sandy Too acid Organic matter content (low)	0.00  0.00  0.20  0.50  0.88	Depth to bedrock Wetness	0.00	Wetness Rock fragments Depth to bedrock Too sandy Too acid	0.00  0.00  0.00  0.20  0.95
Skandia	35	!		Poor	1	Poor	
	   	Depth to bedrock Too acid	0.21  0.50 	Wetness   Depth to bedrock 	0.00	!	0.00

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source   reclamation mater:   		Potential as sou: of roadfill	rce	Potential as sou   of topsoil 	rce
	<u> </u> 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
250B:		 	 	 	 		
Chocolay, extremely		  Poor	 	   Dane		  Poor	1
stony	55	:	!	Poor   Wetness	!	Wetness	0.00
	l I	Droughty Stone content	0.00	Depth to bedrock	0.00	!	0.00
	l I	Depth to bedrock		-	0.11	_	1
	   	Too acid Cobble content	0.50		0.92	-	0.99
Jacobsville,		 	 	 	 	 	
extremely stony	3.0	  Fair	 	Poor	l I	Poor	i
		Too acid	0.61	Wetness	0.00	Wetness	0.00
	i	Organic matter	0.88	Depth to bedrock		!	!
	i	content (low)		1	İ		1
		Depth to bedrock	0.93	<u> </u>	İ		
251B:							
Greylock	90	Fair   Organic matter   content (low)	  0.12	Good 	 	Good 	
	l I	Too acid	0.50	 	l I	 	1
		Carbonate content					ļ
251D:			 	 			
Greylock	85	Fair		Good		Fair	
		Organic matter content (low)	0.12	 	 	Slope	0.63
		Too acid Carbonate content	0.50  0.92	 	 	 	
252A:		 	 	 	 	 	
Finch	50	Poor	İ	Poor	İ	Poor	i
	İ	Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00	Depth to cemented	0.00	Wetness	0.00
		Droughty	0.00	pan		Depth to cemented	0.00
		Depth to cemented	0.00			pan	
		pan Too acid	  0.08	 	 	Too acid 	0.88
Kinross		Poor	İ	    Poor	 	    Poor	İ
KIIIIOSS	1 40	Too sandy	0.00		0.00	!	0.00
	l I	Wind erosion	0.00	wethess	10.00	Wetness	0.00
	l I	Organic matter	0.12	 	l I	wechess	10.00
		content (low)	0.12	 	 		i
	İ	Too acid	0.50	I I	i	 	i
		Droughty	0.99		į		į
254C:		 	 	 	 	 	
Kalkaska, dissected	55	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00	!	[		!
		Organic matter	0.18	!	[		!
		content (low)	ļ	!	[		!
	I	Too acid	0.50		1		
	!	Droughty	0.77				1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source   reclamation mater: 		Potential as sou: of roadfill	rce	Potential as sou of topsoil	rce
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
254C:		l	 		 	l	
Blue Lake, dissected	35	Poor	 	Good	 	  Fair	
	į	Wind erosion	0.00	İ	į	Too sandy	0.30
		Organic matter	0.12			Too acid	0.88
		content (low)					
		Too sandy	0.30				!
		Too acid	0.50			 	
254E:	 	 	 	l I	l I	 	1
Kalkaska, dissected	55	Poor	 	  Fair	i İ	Poor	i
,		Too sandy	0.00	Slope	0.18	Too sandy	0.00
	İ	Wind erosion	0.00	į	İ	Slope	0.00
	İ	Organic matter	0.18		ĺ		İ
		content (low)					
		Too acid	0.50				
		Droughty	0.77		!		!
Danie Tales Alamanta		   <b> </b>		 		   D = ===	-
Blue Lake, dissected	35	Poor   Wind erosion	0.00	Fair   Slope	  0.18	Poor   Slope	0.00
	 	Organic matter	0.12	Slope	<b>0.1</b> 0	Too sandy	0.30
		content (low)	0.12	 	 	Too acid	0.88
		Too sandy	0.30				
	İ	Too acid	0.50		İ		i
254F:							
Kalkaska, dissected	55	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00	1		Too sandy	0.00
	 	Organic matter content (low)	0.18	 	l I	 	1
		Too acid	0.50	 	 	 	1
		Droughty	0.77			 	
	İ		İ		İ		i
Blue Lake, dissected	35	Poor	ĺ	Poor	ĺ	Poor	İ
		Wind erosion	0.00	Slope	0.00	Slope	0.00
		Organic matter	0.12			Too sandy	0.30
		content (low)			!	Too acid	0.88
		Too sandy Too acid	0.30	1		ĺ	
	 	100 acid	0.50	 	l I	 	1
255D:			 	] 	i İ		i
Wallace	95	Poor	İ	Poor	İ	Poor	i
	İ	Too sandy	0.00	Depth to cemented	0.00		0.00
	į	Wind erosion	0.00	pan	į	Depth to cemented	0.00
		Droughty	0.00			pan	
		Depth to cemented	0.00			Too acid	0.50
		pan			ļ		
		Too acid	0.08			 	
256B:		 	 	I I	l I	 	1
Whitewash	95	Poor	 	Good	İ	  Poor	
		Too sandy	0.00		İ	Too sandy	0.00
	i	Wind erosion	0.00		i		
	į	Organic matter	0.00	İ	İ		İ
							1
		content (low)					

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source reclamation mater:		Potential as sour of roadfill	rce	Potential as sou of topsoil	rce
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
266A:	 		 	 	 	 	
Spot	50	Poor	İ	Poor	į	Poor	İ
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Droughty	0.00	Depth to cemented	0.00	Wetness	0.00
		Depth to cemented	0.00	pan		Depth to cemented	0.00
		pan				pan Too acid	
	 	Too acid Organic matter	0.50	 	l I	100 acid	0.68
		content (low)					
Finch		Door	 	Poor		  Poor	
FINCH	410	Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00	Depth to cemented		Wetness	0.00
		Droughty	0.00	pan		Depth to cemented	!
	İ	Depth to cemented	:	<u> </u>	İ	pan	i
	į	pan	j	j	į	Too acid	0.88
		Too acid	0.08				
267A:				 		 	
Finch	85	Poor		Poor		Poor	
		Too sandy	0.00	Wetness	0.00	Too sandy	0.00
		Wind erosion	0.00	Depth to cemented	0.00	Wetness	0.00
		Droughty	0.00	pan		Depth to cemented	0.00
		Depth to cemented pan	10.00	1	 	pan Too acid	0.88
		Too acid	0.08				
268C:	 	[ ]	 	 	 	 	 
Munising, calcareous			İ		İ		i
substratum,	İ		İ		İ		i
dissected	40	Poor	ĺ	Poor	ĺ	Poor	ĺ
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Too acid	0.00	Depth to cemented	0.00	Depth to cemented	0.01
		Depth to cemented	0.01	pan		pan	
	 	pan   Droughty	0.01	 	 	Too acid	0.88
B. 11/2		 					
Frohling, calcareous substratum,			 	 	 	 	
dissected	30	Fair	İ	Poor	İ	Fair	i
	į	Depth to cemented	0.10	Depth to cemented	0.00	Depth to cemented	0.10
		pan		pan		pan	
		Too acid Droughty	0.20	 	 	Too acid	0.76
		Dioughey					
Cookson, dissected	20	!	:	Poor		Fair	
		Too acid	0.50	Depth to bedrock	0.00	Depth to bedrock	0.93
		Organic matter	0.68			 	
	 	content (low) Depth to bedrock	  0.93	 	 	 	 
269E:		 	 		 	 	
Frohling, calcareous	 	 	 	 	I I	 	1
substratum,		! 		! 	İ	 	
dissected	50	Fair	ĺ	Poor	i	Poor	i
		Depth to cemented	0.10	Depth to cemented		Slope	0.00
		Too acid	0.20	pan		Depth to cemented	0.10
		Droughty	0.43	Slope	0.18	pan	
	1	1	I	1	1	Too acid	0.76

Table 14b.--Construction Materials--Continued

and soil name	Pct. of map unit	reclamation mater:		Potential as sou: of roadfill	rce	Potential as sou: of topsoil	rce
	 	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
269E:	 		 	 	 		 
Garlic, dissected	20	Poor	İ	Fair	İ	Poor	İ
I		Too sandy	0.00	Slope	0.18	Too sandy	0.00
		Wind erosion	0.00			Slope	0.00
ļ		Organic matter	0.12				ļ
	 	content (low) Too acid	   0	 		 	
	 	Too acid Droughty	0.50  0.97	 		 	l I
· ·	 	Dioughty	0.37	 		 	
Cookson, dissected	20	Fair	! 	Poor	i	Poor	i
i	İ	Too acid	0.50	Depth to bedrock	0.00	Slope	0.00
į	İ	Organic matter	0.68	Slope	0.18	Depth to bedrock	0.93
I		content (low)					
		Depth to bedrock	0.93	!			
272C:   Munising, calcareous	 	 	 	 		 	
substratum,	 	 	 	 		 	
dissected	40	Poor	 	Poor	i	Poor	i
		Wind erosion	0.00	!	0.00	!	0.00
į	İ	Too acid	0.00	Depth to cemented	0.00	Depth to cemented	0.01
ĺ	ĺ	Depth to cemented	0.01	pan	ĺ	pan	ĺ
I		pan				Too acid	0.88
		Droughty	0.01				
Yalmer, calcareous	 	 	 	 		 	 
substratum,	 		 	 		 	
dissected	30	Poor	İ	Poor	i	Poor	i
į	İ	Wind erosion	0.00	Wetness	0.00	Wetness	0.00
į	İ	Droughty	0.00	Depth to cemented	0.00	Rock fragments	0.00
I		Too acid	0.00	pan		Depth to cemented	0.36
		Depth to cemented	0.36	!		pan	
ļ		pan				Too sandy	0.47
	 	Too sandy	0.47	 		 	
Frohling, calcareous	 	 	l I	 		 	 
substratum,	 		 		i		i
dissected	20	Fair	İ	Poor	i	Fair	i
į	İ	Depth to cemented	0.10	Depth to cemented	0.00	Depth to cemented	0.10
I		pan		pan		pan	
ļ		Too acid	0.20			Too acid	0.76
	 	Droughty	0.43				
275B:	 		 	1			
Munising, calcareous	 		 	 		 	
substratum		Poor	! 	Poor	i	Poor	i
į	İ	Wind erosion	0.00		0.00	Wetness	0.00
j	İ	Too acid	0.00	Depth to cemented	0.00	Depth to cemented	0.05
		Depth to cemented	0.05	pan		pan	
		pan			!	Too acid	0.88
	 	Droughty	0.06	 		 	1
Cookson	   40	  Fair	 	  Poor	1	  Fair	 
	0	Too acid	0.50	Depth to bedrock	!	!	0.93
COORBOIL		100 acid					
	 	Organic matter	0.68			Depth to Dedrock	ĺ
	   		:			 	

Table 14b.--Construction Materials--Continued

and soil name	Pct. of map unit	Potential as source reclamation mater:		Potential as sou	rce	Potential as sou of topsoil	rce
		!	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
281E:	 	 	 				
Mongo, dissected	95	!	!	Poor		Poor	
	 	·	0.00 0.12	Slope   Low strength	0.00	Too clayey   Slope	0.00
	 	content (low)			0.91	biope	
	<u> </u>	Too acid	0.50				i
		Carbonate content	0.92		ĺ		İ
282B: Furlong		  Poor	 	  Poor	 	  Poor	
Fullong	50	Too sandy	0.00	Depth to bedrock			0.00
	 	Wind erosion	0.00			Depth to bedrock	!
	<u> </u>	!	0.00		İ	_	0.68
	ĺ	Depth to bedrock	0.03	İ	ĺ		İ
		Too acid	0.50				
Chinaletan		   Dane		   Dane		   Dane	
Shingleton	4±0 	Wind erosion	0.00	Poor   Depth to bedrock	!	Poor   Depth to bedrock	10 00
	 	!	0.00	Depth to Dedicts			0.38
	<u> </u>	Depth to bedrock	!		İ	-	0.59
	ĺ	Too sandy	0.38	İ	ĺ		İ
		Too acid	0.50				
282D:	 	 	 	 	 	 	
Furlong	   50	Poor	 	Poor	l I	Poor	
<b>.</b>		!	0.00	Depth to bedrock	!	Too sandy	0.00
	İ	Wind erosion	0.00	į	į	Depth to bedrock	0.03
		Droughty	0.00			Slope	0.63
		Depth to bedrock				Too acid	0.68
	 	Too acid	0.50	 	 		
Shingleton	40	Poor		Poor		Poor	i
	İ	Wind erosion	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Droughty	0.00			Too sandy	0.38
		Depth to bedrock	:			!	0.59
	 	Too sandy Too acid	0.38			Slope	0.63
	 	100 acid 	0.50 	 	 	 	
284B:			İ		İ		į
Steuben	40	Poor		Poor		Fair	
		Droughty	0.00	Depth to cemented	0.00	-	0.01
	 	Depth to cemented pan	0.01	pan	 	pan   Too acid	0.88
	 	Too acid	0.32		 	100 acid	
	İ		İ	j	į		į
Blue Lake	30	'		Good		Fair	
		'	0.00			-	0.30
	 	Organic matter content (low)	0.12	l I	 	Too acid	0.88
	 	:	0.30	 	 	 	
			0.50				İ
	ĺ	İ	ĺ	ĺ	ĺ		ĺ
Kalkaska	20	!	:	Good		Poor	
	 	Too sandy	0.00			Too sandy	0.00
	 	Wind erosion   Organic matter	0.00 0.18	I I	I I	 	1
	 	content (low)		 	İ	! 	i
		Too acid	0.50		İ		İ
	l						

Table 14b.--Construction Materials--Continued

Steuben	source 11
Droughty   0.00   Depth to cemented   0.00   Depth to cement   Depth to cemented   D	
Droughty   0.00   Depth to cemented   0.00   Depth to cement   Depth to cemented   D	l I
Depth to cemented   0.01   pan   Pan   Slope   Too acid   0.32   Too acid	j
Pan   Too acid   0.32   Good   Too acid	ed 0.01
Too acid	
Blue Lake	0.63
Wind erosion   0.00   Too sandy   Slope   Too acid	0.88
Wind erosion   0.00   Too sandy   Slope   Too acid	
Content (low)	0.30
Too sandy	0.63
Too acid	0.88
Too sandy	ļ
Too sandy	
Too sandy	I I
Wind erosion   0.00     Slope	0.00
Organic matter   0.18	0.63
Too acid	j
284E: Steuben	
Steuben	
Steuben	
Steuben	
Depth to cemented 0.01   pan   Depth to cement   pan   Slope   0.00   pan   Too acid	
pan	0.00
Too acid   0.32   Too acid   Blue Lake	ed 0.01
Blue Lake	
Wind erosion   0.00   Slope   0.00   Slope   0.00   Slope   0.00   Organic matter   0.12     Too sandy   Content (low)     Too sandy   0.30   Too acid   Too acid   Too acid   0.50     Poor   Poor   Poor   Poor   Too sandy   0.00   Slope   0.00   Slope   Wind erosion   0.00   Too sandy   0.77     Too acid   0.50   Droughty   0.77     Poor   Poor   Poor   Poor   Too acid   0.50   Droughty   0.77     Poor	0.88
Wind erosion   0.00   Slope   0.00   Slope   0.00   Slope   0.00   Organic matter   0.12   Too sandy   0.12   Too sandy   0.30   Too acid   Too acid   0.50	l I
content (low)	0.00
Too sandy	0.30
Too acid   0.50	
Ralkaska	0.88
Too sandy	
Too sandy	l I
Organic matter   0.18	0.00
content (low)	0.00
Too acid   0.50	
Droughty   0.77	
285B:  Halfaday	I
Halfaday	
Too sandy	j
Wind erosion   0.00   Wetness   Organic matter   0.12   Too acid   content (low)     Too acid   Too acid   0.50	
Organic matter   0.12   Too acid   content (low)	0.00
content (low)	0.53
Too acid   0.50	0.76
DIOUGHELY   0.33	j
	Ţ
Kinross 40   Poor     Poor     Poor	1000
Too sandy   0.00   Wetness   0.00   Too sandy	0.00
Wind erosion   0.00     Wetness   Organic matter   0.12	0.00
content (low)	
Too acid   0.50	į
Droughty   0.99	j

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source reclamation mater:		Potential as source of roadfill		Potential as source of topsoil		
		'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
286B:								
Greylock	50	  Fair	 	  Good	l	  Good		
•	İ	Organic matter	0.12		i		į	
	į	content (low)	İ		į		į	
		Too acid	0.50					
		Carbonate content	0.92					
Cookson	   40	  Fair	 	  Poor	l I	  Fair		
COORBOIL	10	!	0.50	Depth to bedrock	0.00	!	0.93	
		!	0.68	Depen to Dearock		Depen to Dearock		
	İ	content (low)			i		i	
	İ	Depth to bedrock	0.93		İ		į	
0.057				l				
287B: McMaster	   55	Poor	 	  Fair		  Poor		
1101142 002		Too sandy	0.00	Wetness	0.53	!	0.00	
			0.09	Cobble content	0.97	-	0.00	
	İ		0.12		i	(rock fragments)	į	
	İ	content (low)	ĺ		ĺ	Rock fragments	0.00	
		Too acid	0.50		ļ	Wetness	0.53	
Davies	   35	  Poor	 	  Poor		  Poor		
Davies	33	!	0.00	!	0.00	!	0.00	
		· -	0.12	Cobble content	0.06	Wetness	0.00	
		content (low)				Rock fragments	0.00	
	i	Droughty	0.32		İ	_	0.00	
	İ	Too acid	0.68		ĺ	(rock fragments)	ĺ	
		Cobble content	0.79		ļ		ļ	
290A:	 	 	 	 	l I	 		
Namur, very stony	50	Poor	 	Poor	i	Poor	i	
			0.00	Depth to bedrock	0.00	Depth to bedrock	0.00	
	İ	Depth to bedrock	!	_	i	Rock fragments	0.88	
	İ	Too acid	0.99				İ	
Ruse, very stony		   Doom	 	  Poor		  Poor		
Ruse, Very Scony	=0		0.00	Depth to bedrock	10 00		0.00	
		Depth to bedrock	!	Wetness	0.00	Depth to bedrock		
		Carbonate content				Organic matter	0.78	
	İ		İ		i	content (low)	i	
	İ		ĺ			Rock fragments	0.97	
292B:		 	 	l		l I		
Mashek, sandy		 	 	 		 		
substratum	90	  Fair	 	Poor	i	Poor		
		!	0.12	Wetness	0.00	Wetness	0.00	
	i	content (low)	į		İ	Hard to reclaim	0.88	
		Too acid	0.54		İ	(rock fragments)	İ	
296D:	 	 	 	[ 		[ 	 	
Islandlake	55	Poor		  Good		  Poor		
	į	!	0.00		İ	Too sandy	0.00	
	İ	· -	0.00		İ	Slope	0.84	
		Too acid	0.00		1	Too acid	0.98	
	1	1						

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as sou of roadfill	rce	Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Valu
296D:		 		 			
McMillan	35	Poor	į	Good	į	Poor	į
		Too sandy	0.00			Too sandy	0.00
		Organic matter	0.12		!	Too acid	0.59
		content (low)				Slope	0.84
		Too acid Droughty	0.50	 		 	
		Diougney		 			
296E:	İ	j	į	j	į		İ
Islandlake	55	!	[	Poor		Poor	
		Too sandy	0.00	Slope	0.00	-	0.00
		Wind erosion	0.00			Too sandy	0.00
		Too acid	0.00	 		Too acid	0.98
	 	Droughty	0.92	 		 	
McMillan	35	Poor		Poor		Poor	
	İ	Too sandy	0.00	Slope	0.00	Slope	0.00
	İ	Organic matter	0.12		İ	Too sandy	0.00
		content (low)				Too acid	0.59
		Too acid	0.50	!			
		Droughty	0.58				
97B:	 	 		 		 	
Rubicon, severely						 	i
burned	95	Poor	i	Good	i	Poor	i
	İ	Too sandy	0.00		İ	Too sandy	0.00
		Wind erosion	0.00			Rock fragments	0.97
		Organic matter	0.12				
		content (low)					!
		Droughty Too acid	0.27	 		 	
		100 acid		 		 	
97D:	į		į	İ	į		i
Rubicon, severely							
burned	95	Poor		Good	!	Poor	!
		Too sandy	0.00			Too sandy	0.00
		Wind erosion   Organic matter	0.00	 		Slope   Rock fragments	0.74
	 	content (low)	0.12	 		ROCK ITAGMENTS	0.37
		Droughty	0.27		i		i
	İ	Too acid	0.50	j	į		İ
		!	[	!	[		ļ
298B:							
Wurtsmith	55	Poor   Too sandy	'	Fair   Wetness	0.53	Poor	0.00
	 	Wind erosion	0.00	wethess	0.55	Too sandy Too acid	0.24
		Organic matter	0.12			Wetness	0.53
		content (low)			i		
		Too acid	0.50		İ		i
	İ	Droughty	0.51	į	į	İ	İ
D. C 1		   Parasa		   Parasa		   D = = = =	
Deford	35	•	'	Poor		Poor	
	 	Too sandy Wind erosion	0.00	Wetness	0.00	Too sandy Wetness	0.00
	1	Organic matter	0.12	 		Too acid	0.99
		content (low)		 		100 actu	
		Too acid	0.50		i	 	i
	1	i	i	i	i	I	i

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater:	Potential as sou of roadfill	Potential as source   of roadfill 		rce	
		Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
299F:	 		 			 	
Shelldrake	99	Poor	ĺ	Poor	ĺ	Poor	ĺ
		Too sandy	0.00	Slope	0.00	Too sandy	0.00
		Wind erosion	0.00		ļ	Slope	0.00
		Organic matter	0.12			Too acid	0.24
		content (low) Too acid	  0.50	l I		İ	
		Droughty	0.62				
	İ			į			
300F: Shelldrake	   61	Poor	 	  Poor		  Poor	l I
211022424110		Too sandy	0.00	Slope	0.00	Too sandy	0.00
	i	Wind erosion	0.00		1	Slope	0.00
	į	Organic matter	0.12	İ	İ	Too acid	0.24
	ĺ	content (low)	ĺ		ĺ		ĺ
		Too acid	0.50				
		Droughty	0.62				
Dune land	   38 	  Not rated 	   	  Not rated 	   	  Not rated 	   
301F:	 	 	 			 	
Cookson, dissected	55	Fair	j	Poor	į	Poor	į
		Too acid	0.50	Depth to bedrock	0.00	Slope	0.00
		Organic matter	0.68	Slope	0.00	Depth to bedrock	0.93
		content (low)				l	
		Depth to bedrock	0.93 			 	
Nykanen, dissected	35	Poor		Poor	İ	Poor	İ
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock		Wetness	0.00	Wetness	0.00
		Too acid	0.50	Slope	0.00	Depth to bedrock	1
	 	Water erosion	0.99 			Rock fragments Too acid	0.88
	į	į		į	į		į
302B: Dillingham	15	Poor	 	Poor	l i	  Fair	l i
DIIIIIIgiiaiii	=2	Wind erosion	0.00	Depth to cemented		Depth to cemented	0 01
		Droughty	0.00	pan		pan pan	
	İ	Depth to cemented	'	<u> </u>	i	Too sandy	0.23
		pan				Too acid	0.32
		Too sandy	0.23	!			
		Too acid	0.50		l i	 	l i
Kalkaska	40	Poor	 	  Good		  Poor	
	į	Too sandy	0.00	İ	į	Too sandy	0.00
		Wind erosion	0.00				
		Organic matter	0.18				
		content (low)			ļ		ļ
	 	Too acid Droughty	0.50  0.77	 		 	l I
		Jioughoy					
302D:							
Dillingham	52	Poor   Wind erosion		Poor		Fair	0.01
	 	Wind erosion   Droughty	0.00  0.00	Depth to cemented pan	U.UU	Depth to cemented pan	10.01
		Depth to cemented	'		i	Too sandy	0.01
	i .			1	1		
		pan				Slope	0.63
	 	pan   Too sandy	  0.01			Slope   Too acid	0.63  0.82

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater:		Potential as sous of roadfill	rce	Potential as sou of topsoil	rce
	<u> </u> 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
302D:		 	 		 	 	
Kalkaska	45	Poor	j	Good	j	Poor	į
	ĺ	Too sandy	0.00	İ	ĺ	Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter	0.18				
		content (low)					
		Too acid	0.50				
		Droughty	0.77	l I	 	l I	 
302E:							
Dillingham	50	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to cemented	0.00		0.00
		Droughty	0.00	pan		Depth to cemented	0.01
	!	Depth to cemented	0.01	Slope	0.00	pan	
		pan				Too sandy	0.01
		Too sandy Too acid	0.01		 	Too acid	0.82
		100 acid	0.50 	 	 	 	
Kalkaska	40	Poor	İ	Poor	İ	Poor	i
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter	0.18				
		content (low)					
		Too acid	0.50				
		Droughty	0.77 	 	 	 	
302F:							i
Dillingham	50	Poor		Poor		Poor	
		Wind erosion	0.00	Slope	0.00	Slope	0.00
		Droughty	0.00	Depth to cemented	0.00	Depth to cemented	0.01
		Depth to cemented	0.01	pan		pan	
		pan Too sandy	  0.01	l I	 	Too sandy Too acid	0.01
	1	Too sandy	0.50	 	l I	100 acid	0.62
	İ				! 	 	i
Kalkaska	40	Poor	j	Poor	į	Poor	į
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00	!		Too sandy	0.00
		Organic matter	0.18				
		content (low)	  0.50	l I	 	 	
		Droughty	0.77	 	 	 	
	į		ĺ	į	İ		į
303B: Kiva		Poor	 	  Good	 	  Poor	
KIVA	55	Too sandy	0.00	6000	l I	1	0.00
	i	Organic matter	0.12	 	! 	· -	0.00
	i	content (low)	<b></b>	i	İ		0.50
	i	Droughty	0.24	į	İ	(rock fragments)	!
		Too acid	0.61	į		-	į
Trenary	20	Pair	 	Good	 	  Good	
irenary	30	Organic matter	0.12	3000	l I	<del>G</del> OOQ	
		content (low)			i I	! 	i
	i	Too acid	0.50	i	İ		i
	į	İ		į	İ	İ	į

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	ap		Potential as sou of roadfill	Potential as sour	rce	
	<u> </u> 	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
303D:		 	 			 	
Kiva	55	Poor		Good	j	Poor	į
		Too sandy	0.00			Too sandy	0.00
		Organic matter	0.12				0.00
		content (low)				1	0.50
		Droughty	0.24			(rock fragments)	
		Too acid	0.61	 	l I	Slope	0.84
Trenary	30	  Fair	 	Good	 	  Fair	 
11011417		Organic matter	0.12			Slope	0.84
	i	content (low)			İ		i
	İ	Too acid	0.50	j	İ	İ	İ
		[					
303E:		   Parasas					
Kiva	55	!	!	Poor	!	Poor	
		Too sandy	0.00  0.12	Slope	0.00	:	0.00
	1	Organic matter content (low)	0.12	 	 	· -	0.00
		Droughty	0.24	] 	i i		0.50
	i	Too acid	0.61		İ	(rock fragments)	
	İ	j	į	İ	j	İ	İ
Trenary	30	Fair		Poor		Poor	
		Organic matter	0.12	Slope	0.00	Slope	0.00
		content (low)					
		Too acid	0.50	l I		 	
305B:		 	 	 		 	 
Wurtsmith	55	Poor	i	Fair	İ	Poor	i
	į	Too sandy	0.00	Wetness	0.53	Too sandy	0.00
	į	Wind erosion	0.00	İ	İ	Too acid	0.24
		Organic matter	0.12			Wetness	0.53
		content (low)					
		Too acid	0.50		ļ		
		Droughty	0.51				
Meehan	1 40	  Poor	 	Poor	l I	  Poor	 
ncenan	10	Too sandy	0.00	1	0.00	1	0.00
	i	Wind erosion	0.00			Wetness	0.00
	į	Organic matter	0.12	İ	İ	Too acid	0.59
		content (low)					
		Droughty	0.46				
		Too acid	0.50				
306C:	I I	 	 	I I	I I	 	 
Deerton, dissected	35	Poor	 	Poor		  Poor	 
20020011, 022200000		•	0.00	Depth to bedrock		•	0.00
	į		0.00	İ	İ	Depth to bedrock	
	į	Droughty	0.00	İ	İ	Too acid	0.76
	İ	Depth to bedrock	0.16	İ			Ì
		Too acid	0.50	ļ.		!	
maladahah dinasa i		   Page		  Page			
Tokiahok, dissected	30	•	0.00	Poor	10.00	Fair	10 10
		Wind erosion   Droughty	0.00	Depth to cemented pan	0.00	Depth to cemented pan	10.10
	I			l barr	1	: -	0.36
		Depth to cemented	10 * TO				
		Depth to cemented pan	0.10			· -	0.84
	   	: -	0.10    0.20	   	   	-	

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
306C:		 		 		 	
Jeske, dissected	20	Poor	į	Poor	İ	Poor	İ
	ĺ	Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Droughty	0.00			Depth to bedrock	0.01
		Depth to bedrock	0.01				
		Organic matter	0.12				
		content (low)					
		Too acid	0.50	 		 	
307B:				 		 	
Rubicon, very deep	ĺ		İ		İ		İ
water table	95	Poor	İ	Good	İ	Poor	İ
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter	0.12				
		content (low)					
		Droughty	0.23				
		Too acid	0.50			l	
307D:	 			 	i i		
Rubicon, very deep	i		i	i	i		i
water table	95	Poor	i	Good	i	Poor	i
	İ	Too sandy	0.00	İ	İ	Too sandy	0.00
	ĺ	Wind erosion	0.00		İ	Slope	0.63
		Organic matter	0.12				
		content (low)					
		Droughty	0.23				
	 	Too acid	0.50	 		 	
308B:							
Rubicon	55	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter	0.12				
		content (low)					
		Droughty	0.23		!		
		Too acid	0.50	 		 	
Sultz	40	Poor		Good		Poor	
	ĺ	Too sandy	0.00		İ	Too sandy	0.00
		Wind erosion	0.00				
		Organic matter	0.12				
		content (low)					
		Too acid	0.54				
308D:		[ 		 		[ 	
Rubicon	55	Poor	İ	Good	İ	Poor	İ
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter	0.12				
		content (low)					
		Droughty	0.23				
	1	Too acid	0.50	I .	1	I .	1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater	Potential as sou of roadfill	irce	Potential as sou of topsoil	ırce	
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
308D:						 	
Sultz	40	Poor		Good	i	Poor	i
Darcz	10	Too sandy	0.00	1	1	Too sandy	0.00
		Wind erosion	0.00		1	Slope	0.63
		Organic matter	0.12			blobe	0.03
	1	content (low)			i	! 	i
	į	Too acid	0.54				
309B:						 	
Rubicon, deep water	İ	j	į	İ	İ	İ	į
table	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter	0.12				ļ
		content (low)			!		ļ
		Droughty	0.23		ļ		
		Too acid	0.50	 		 	
309D:	İ	İ	İ	j	İ	İ	i
Rubicon, deep water							
table	95	Poor		Good		Poor	
		Too sandy	0.00		!	Too sandy	0.00
		Wind erosion	0.00		ļ	Slope	0.63
		Organic matter	0.12				
		content (low)					
	1	Droughty Too acid	0.23	 		 	
		100 acid		 		 	
310B:	į	į	į	į	į		į
Kalkaska, burned	90	!		Good		Poor	
		Too sandy	0.00		ļ	Too sandy	0.00
		Wind erosion	0.00		ļ		
		Organic matter	0.18				
		content (low)		l I		 	
	1	Too acid Droughty	0.50  0.77	 		 	
		Dioughty				 	
310D:							1
Kalkaska, burned	95	!		Good		Poor	
		Too sandy	0.00	1		Too sandy	0.00
		Wind erosion	0.00	 		Slope	0.63
	l I	Organic matter content (low)	0.18	 		 	
		Too acid	0.50	 		 	
		Droughty	0.77				
310E:							
310E: Kalkaska, burned	95	Poor		Poor		  Poor	1
, Darmou		Too sandy	0.00	Slope	0.00	Slope	0.00
	i	Wind erosion	0.00			Too sandy	0.00
	i	Organic matter	0.18	İ	İ		ĺ
				•	1	•	1
	İ	content (low)					
	j I	content (low) Too acid	0.50			 	

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as sou of roadfill	irce	Potential as sou of topsoil	irce
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
311B:		 		 		 	
Kalkaska, very deep	İ	İ	İ	İ	İ	İ	İ
water table, burned	95	Poor	İ	Good	ĺ	Poor	İ
	İ	Too sandy	0.00		ĺ	Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content (low)	0.18	 		 	
	i	Too acid	0.50		i	! 	i
	į	Droughty	0.77				į
311D:		 		 		 	
Kalkaska, very deep							
water table, burned	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
	ļ	Wind erosion	0.00		!	Slope	0.63
		Organic matter	0.18				
		content (low)				 	
		Too acid   Droughty	0.50 0.77	 		 	
312B:	 	 		 		 	
Islandlake, burned	95	Poor		Good	i	Poor	1
In the second second		Too sandy	0.00		i	Too sandy	0.00
	i	Wind erosion	0.00		i	Too acid	0.98
	i	Too acid	0.00		i		i
	į	Droughty	0.92		į	  -	į
312D:		 		 		 	
Islandlake, burned	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.84
	!	Too acid	0.00		ļ	Too acid	0.98
		Droughty 	0.92	 		 	
313B:	į	 	į		į		į
<pre>Kalkaska, deep water table, burned</pre>		  Poor		Good		  Poor	-
cable, bulled	55	Too sandy	0.00	9000		Too sandy	0.00
	i	Wind erosion	0.00		i	100 banay	
	i	Organic matter	0.18		i	! 	i
	i	content (low)			i		i
	i	Too acid	0.50		i		i
	į	Droughty	0.77	į	į		į
314B:		[ 		 		[ 	
Blue Lake, very deep							
water table, burned	95	!		Good		Fair	
		Wind erosion	0.00			Too sandy	0.30
	ļ	Organic matter	0.12		ļ	Too acid	0.88
		content (low)					İ
		Too sandy	0.30				1
		Too acid	0.50	1	1	I	1

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as sou of roadfill	rce	Potential as sou of topsoil	ırce
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
315B:		 		 		 	
Blue Lake, deep	i				i		i
water table, burned	95	Poor	İ	Good	İ	Fair	i
	İ	Wind erosion	0.00		İ	Too sandy	0.30
		Organic matter	0.12			Too acid	0.88
		content (low)					
		Too sandy	0.30				
		Too acid	0.50				ļ
316B:				 		 	
Blue Lake, burned	95	Poor		Good		  Fair	
Dide Dake, Dained	55	Wind erosion	0.00			Too sandy	0.30
	i	Organic matter	0.12		i	Too acid	0.88
	i	content (low)			i		1
	į	Too sandy	0.30	İ	İ		i
	İ	Too acid	0.50		İ		İ
316D:							
Blue Lake, burned	95			Good	!	Fair	
		Wind erosion	0.00			Too sandy	0.30
		Organic matter	0.12			Slope   Too acid	0.63
		content (low) Too sandy	0.30	 		100 acid	10.88
	1	Too sandy	0.50	 		 	
	i				i		i
317B:	i		i		i		i
Kalkaska, very deep	İ		į	j	į		İ
water table	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00		!		ļ
		Organic matter	0.18				
		content (low) Too acid	0.50	 		İ	
	1	Droughty	0.77	 		 	
		Dioughey				 	i
317D:	i				i		i
Kalkaska, very deep	į		İ	İ	İ		i
water table	95	Poor	İ	Good	İ	Poor	İ
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter	0.18		!		ļ
		content (low)					
		Too acid Droughty	0.50	 		 	
		Diodgiley	0.77	 		 	İ
318B:	İ		i	İ	i		
Islandlake, very	į	į	į	į	į		j
deep water table	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00	!	[	Too acid	0.98
		Too acid	0.00		1		
		Droughty	0.92	 	1	 	
318D:	1	 		 	I	 	
Islandlake, very		 	1	I 		 	1
deep water table	95	Poor		Good	1	  Poor	
		Too sandy	0.00		i	Too sandy	0.00
		Wind erosion	0.00		İ	Slope	0.84
		· -		   	<u> </u> 		

Table 14b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential as sou of roadfill	rce	Potential as source   of topsoil 	
		Rating class and limiting features	Value	Rating class and	Value	Rating class and   limiting features	Value
319B:		 				 	
Islandlake	95	Poor		Good		Poor	
	İ	Too sandy	0.00		İ	Too sandy	0.00
	İ	Wind erosion	0.00		İ	Too acid	0.98
	İ	Too acid	0.00		İ	Ī	İ
		Droughty	0.92	į	İ		
319D:		 				 	
Islandlake	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.84
		Too acid	0.00			Too acid	0.98
		Droughty	0.92				
319E:		 				 	
Islandlake	95	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Too acid	0.00			Too acid	0.98
		Droughty	0.92				
319F:							
Islandlake	95	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Too acid	0.00			Too acid	0.98
		Droughty	0.99				
320B:							
Kalkaska, deep water							
table	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter	0.18				
	!	content (low)	!	!	!	!	!
	!	Too acid	0.50		!		!
		Droughty 	0.77	 		 	
321B:	į		į	į	į	<u> </u>	į
Kalkaska	50	Poor		Good	!	Poor	
	!	Too sandy	0.00		!	Too sandy	0.00
		Wind erosion	0.00		-		1
		Organic matter	0.18		-		1
		content (low)			1		1
		Too acid Droughty	0.50	 		 	
December				  Page		   Page 19	
Deerton	45	Poor		Poor		Poor	
		Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
		Wind erosion	0.00		1	Depth to bedrock	
		Droughty	0.00		1	Too acid	0.76
		Depth to bedrock Too acid	0.16		I	 	1
		100 acid			1	 	
	1	I .	1	T. Control of the Con	1	I .	1

Table 14b.--Construction Materials--Continued

and soil name   of   map		reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
321D:	 		 	 	 		
Kalkaska	50	Poor	İ	Good	ĺ	Poor	İ
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.63
		Organic matter	0.18				
		content (low)					
		Too acid	0.50				
		Droughty	0.77				
Deerton	45	  Poor	 	  Poor		Poor	
		Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
1		Wind erosion	0.00			Depth to bedrock	0.16
		Droughty	0.00			Slope	0.63
		Depth to bedrock	0.16			Too acid	0.76
		Too acid	0.50		1		

### Table 15a.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed   excavated   ponds	
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
10: Beaches	    100	    Not rated 		    Not rated 		    Not rated 	
11C: Deer Park	     90   	  Very limited   Seepage   Slope	  -  1.00  0.32	  Somewhat limited   Seepage	    0.91	  Very limited   Depth to water	1.00
11E: Deer Park	     95   	  Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.91	    Very limited   Depth to water 	      1.00
11F: Deer Park	     98   	  Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.91	    Very limited   Depth to water 	      1.00
12B: Rubicon	     90 	    Very limited   Seepage	1.00	    Somewhat limited   Seepage	0.82	    Very limited   Depth to water	
12D: Rubicon	     95   	    Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.82	    Very limited   Depth to water 	      1.00
12E: Rubicon	     95 	    Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.82	    Very limited   Depth to water	      1.00
13B: Kalkaska	     94 	    Very limited   Seepage	1.00	    Somewhat limited   Seepage	0.64	    Very limited   Depth to water	
13D: Kalkaska	     96   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.64	  Very limited   Depth to water 	
13E: Kalkaska	    100   	  Very limited   Seepage   Slope	      1.00  1.00	  Somewhat limited   Seepage 	    0.64 	  Very limited   Depth to water 	    1.00
15A: Croswell	   92     	  Very limited   Seepage 	    1.00 	  Very limited   Depth to   saturated zone   Seepage	  1.00    0.64	  Very limited   Cutbanks cave   Depth to   saturated zone	  1.00  0.01

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	<u> </u> 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16A: Paquin	   90     	  Very limited   Seepage   Depth to cemented   pan	    1.00  1.00	  Very limited   Thin layer   Depth to   saturated zone   Seepage	    1.00  1.00    0.95	  Very limited   Cutbanks cave   Depth to   saturated zone	    1.00  0.01
17A: Au Gres	   92     	  Very limited   Seepage   	      1.00 	Very limited Depth to saturated zone Seepage	    1.00    0.64	  Very limited   Cutbanks cave 	      1.00
18: Kinross	   92       	  Very limited   Seepage   	    1.00   	  Very limited   Depth to   saturated zone   Ponding   Seepage	 	  Very limited   Cutbanks cave   	  1.00   
19: Deford	   92       	  Very limited   Seepage   	      1.00   	Very limited Depth to saturated zone Ponding Seepage	    1.00    1.00  0.25	  Very limited   Cutbanks cave   	    1.00   
21A: Ingalls	   90     	  Very limited   Seepage   	      1.00   	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.72	  Very limited   Cutbanks cave 	1.00
24B: Munising	   90       	  Somewhat limited   Depth to cemented   pan   Seepage   Slope	      1.00    0.30  0.08	  Very limited   Depth to   saturated zone   Thin layer   Seepage	    1.00    1.00  0.08	  Very limited   Depth to water     	    1.00   
25B: Munising	   55     	  Somewhat limited   Depth to cemented   pan   Seepage   Slope	  1.00    0.30  0.08	  Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    1.00  0.08	  Very limited   Depth to water   	  1.00 
Yalmer	   30       	Very limited Seepage Depth to cemented pan Slope	  1.00  0.98    0.08	   Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    0.98  0.36	Very limited Depth to water	  1.00     
25D: Munising	   55       	  Very limited   Slope   Depth to cemented   pan   Seepage	  1.00  1.00    0.30	  Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    1.00  0.08	  Very limited   Depth to water   	1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	   	Rating class and limiting features	Value 	Rating class and limiting features	Value	Rating class and limiting features	Value
25D: Yalmer	   30     	  Very limited   Seepage   Slope   Depth to cemented   pan	    1.00  1.00  0.98	  Very limited   Depth to   saturated zone   Thin layer   Seepage	    1.00    0.98  0.36	    Very limited   Cutbanks cave     	    1.00   
31D: Trenary	     85   	    Very limited   Slope   Seepage	      1.00  0.30	    Somewhat limited   Seepage 	      0.03	    Very limited   Depth to water 	      1.00
33: Ensley	   90     	  Somewhat limited   Seepage 	    0.70 	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Cutbanks cave   Slow refill	  1.00  0.30
35B: Munising, calcareous substratum		Depth to cemented pan		saturated zone	        1.00    0.99	  -  Very limited   Depth to water  -	      1.00
Yalmer, calcareous substratum	   30       	Very limited Seepage Depth to cemented pan	    1.00  0.91 	  Very limited   Depth to   saturated zone   Thin layer   Seepage	    1.00    0.91  0.07	  Very limited   Depth to water   	1.00
Frohling, calcareous substratum		  Somewhat limited   Depth to cemented   pan   Seepage   Slope		  Somewhat limited   Thin layer   Seepage 	  0.98  0.01 	  Very limited   Depth to water   	1.00
37B: Grand Sable	     90 	  Very limited   Seepage	      1.00	    Somewhat limited   Seepage	0.91	  Very limited   Depth to water	1.00
37E: Grand Sable	     98   	  Very limited   Seepage   Slope	      1.00  1.00	  Somewhat limited   Seepage 	      0.91	  Very limited   Depth to water 	1.00
38B: Rhody	   60         	  Very limited   Seepage   Depth to bedrock 	1.00	  Very limited   Depth to   saturated zone   Ponding   Seepage   Thin layer	  1.00    1.00  0.91  0.66	  Very limited   Cutbanks cave   Depth to hard   bedrock	  1.00  0.99 

Table 15a.--Water Management--Continued

30	Rating class and limiting features  Very limited Seepage	Value	Rating class and limiting features	Value	1				
30   	-			<u> </u>	Rating class and   limiting features	Value			
ļ	Depth to bedrock	  1.00  0.61	  Very limited   Depth to   saturated zone   Piping	      1.00    1.00	  Very limited   Depth to hard   bedrock   Cutbanks cave	    1.00    1.00			
		   	Thin layer   Seepage 	0.95  0.91	   				
90	Very limited Seepage	    1.00	  Somewhat limited   Seepage 	      0.64	    Very limited   Depth to water 	    1.00			
90	Very limited Seepage	    1.00     	   Very limited   Depth to   saturated zone   Ponding   Seepage   Large stones	  1.00    1.00  0.95  0.14	  Very limited   Cutbanks cave   Large stones 	  1.00  0.14 			
90   	Seepage	0.70	 	    1.00    1.00  0.66  0.03	Very limited Depth to hard bedrock Cutbanks cave	    1.00    0.10			
55   	_	:	!		    Very limited	      1.00			
   	Slope	1.00	Seepage	0.42	Depth to water				
30		'	  Very limited   Depth to   saturated zone   Thin layer	  1.00    1.00	  Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10			
			Seepage 	0.66	 				
55       	Seepage Slope	1.00	   Somewhat limited   Thin layer   Seepage	  0.96  0.42 	  Very limited   Depth to water   	1.00			
30	Slope	1.00	Depth to   saturated zone   Thin layer	  1.00    1.00  0.66	   Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10			
90     	_	      1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to hard   bedrock   Cutbanks cave	    1.00    0.10			
	90 90 55 30	90   Very limited   Seepage	Seepage   1.00	Seepage   1.00   Seepage   90   Very limited   Seepage   1.00   Depth to   saturated zone   Ponding   Seepage   Large stones   Seepage   Large stones   Ponding   Seepage   Large stones   Ponding   Thin layer   Seepage   Somewhat limited   Seepage   Somewhat limited   Seepage   Somewhat limited   Seepage   Somewhat limited   Depth to bedrock   O.81   Depth to   Slope   Seepage   Somewhat limited   Somewhat limited   Seepage   Somewhat limited   ---------	-----------------------------------	--	--	--	----------------------------------
		Rating class and limiting features	Value 	Rating class and limiting features	Value	Rating class and limiting features	Value		
49B: Cookson	     90   	  Somewhat limited   Seepage   Depth to bedrock	      0.70  0.66	    Somewhat limited   Thin layer 	      0.66	    Very limited   Depth to water 	      1.00		
51: Nahma	   50     	  Somewhat limited   Depth to bedrock   Seepage		  Very limited   Depth to   saturated zone   Ponding   Thin layer	  1.00    1.00  0.86	bedrock   Cutbanks cave	  1.00    1.00  0.30		
Ruse	   40       	  Very limited   Depth to bedrock     	  1.00       	   Very limited   Depth to   saturated zone   Thin layer   Ponding   Seepage	  1.00    1.00  1.00  0.03	  Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10		
52B: Summerville	   85   	  Very limited   Depth to bedrock   Seepage		  Very limited   Thin layer 	    1.00 	  Very limited   Depth to water 	1.00		
57: Carbondale	   30         	  Very limited   Seepage   	    1.00       	Very limited   Organic matter   content   Depth to   saturated zone   Piping   Ponding	  1.00    1.00    1.00  1.00	  Somewhat limited   Cutbanks cave   	  0.10     		
Lupton	   30         	   Very limited   Seepage     	  1.00       		  1.00    1.00    1.00	   Somewhat limited   Cutbanks cave     	  0.10       		
Tawas	   30       	  Very limited   Seepage   	    1.00     	   Very limited   Depth to   saturated zone   Ponding   Seepage	  1.00    1.00  0.91	  Very limited   Cutbanks cave     	  1.00     		
58: Dawson	   30       	  Very limited   Seepage   	    1.00     	  Very limited   Depth to   saturated zone   Piping   Ponding   Seepage	  1.00    1.00  1.00  0.25	  Very limited   Cutbanks cave   	  1.00     		

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond   reservoir   areas		Embankments, dikes, and levees		Aquifer-fed   excavated   ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58: Greenwood	     30       	  Very limited   Seepage     	    1.00       	  Very limited   Organic matter   content   Depth to   saturated zone   Piping   Ponding	    1.00    1.00    1.00	  Somewhat limited   Cutbanks cave   	    0.10     
Loxley	   30         	  Very limited   Seepage   	    1.00         	  Very limited   Organic matter   content   Depth to   saturated zone   Piping   Ponding	  1.00    1.00    1.00  1.00	  Somewhat limited   Cutbanks cave   	  0.10       
59: Chippeny	   55         	  Very limited   Seepage   Depth to bedrock   	  1.00  0.91     	Very limited   Organic matter   content   Depth to   saturated zone   Piping   Ponding   Thin layer	  1.00    1.00    1.00  1.00  0.91	   Very limited   Depth to hard   bedrock   Cutbanks cave 	  1.00    0.10 
Nahma	   30     	  Somewhat limited   Depth to bedrock   Seepage 	  0.86  0.70 	  Very limited   Depth to   saturated zone   Ponding   Thin layer	  1.00    1.00  0.86	   Very limited   Depth to hard   bedrock   Cutbanks cave   Slow refill	  1.00    1.00  0.30
60: Histosols	   50       	  Very limited   Seepage   	    1.00       	Very limited   Organic matter   content   Ponding   Depth to   saturated zone   Piping	  1.00    1.00  1.00 	  Somewhat limited   Cutbanks cave     	  0.10     
Aquents	   50     	  Somewhat limited   Seepage   	    0.70   	  Very limited   Ponding   Depth to   saturated zone	  1.00  1.00 	  Somewhat limited   Slow refill   Cutbanks cave 	  0.30  0.10
61: Pits	    100	    Not rated 		    Not rated 		    Not rated 	 
62F: Udipsamments Udorthents	İ	ĺ	       	  Not rated    Not rated	       	  Not rated    Not rated	
64B: Kiva	   90 	  Very limited   Seepage 	1.00	  Somewhat limited   Seepage 	0.95	  Very limited   Depth to water 	    1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64D: Kiva	     90   	  Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.95	    Very limited   Depth to water	1.00
65D: Jeske, bedrock terrace	     45       	    Very limited   Seepage   Depth to bedrock	      1.00  0.83	  -  Very limited   Depth to   saturated zone   Thin layer   Seepage	      1.00    1.00  0.52	Very limited Depth to hard bedrock Cutbanks cave	      1.00    1.00
Gongeau, bedrock terrace	   25     	  Somewhat limited   Depth to bedrock   Seepage 	    0.88  0.01	  Very limited   Depth to   saturated zone   Thin layer   Seepage	    1.00    1.00  0.52	Very limited Depth to hard bedrock Cutbanks cave	    1.00    0.10
Deerton, bedrock terrace	   20   	  Very limited   Seepage   Slope   Depth to bedrock	    1.00  1.00  0.52	  Somewhat limited   Thin layer   Seepage	      0.96  0.42	    Very limited   Depth to water   	    1.00
65F: Jeske, bedrock terrace	     45     	  -  Very limited   Seepage   Depth to bedrock   Slope	      1.00  0.83  0.08	 	      1.00    1.00	Very limited Depth to hard bedrock Cutbanks cave	      1.00    1.00
Gongeau, bedrock terrace	   25     	  Somewhat limited   Depth to bedrock   Seepage	    0.88  0.01 	   Very limited   Depth to   saturated zone   Thin layer   Seepage	    1.00    1.00  0.52	   Very limited   Depth to hard   bedrock   Cutbanks cave	    1.00    0.10
Deerton, bedrock terrace	   20     	  Very limited   Seepage   Slope   Depth to bedrock	    1.00  1.00  0.52	  Somewhat limited   Thin layer   Seepage 	    0.96  0.42 	  Very limited   Depth to water     	    1.00   
66D: Ruse, bedrock terrace	   40       	    Very limited   Depth to bedrock   	      1.00     	Very limited Depth to saturated zone Piping Thin layer	    1.00    1.00  1.00	Very limited Depth to hard bedrock Slow refill Cutbanks cave	    1.00    0.30  0.10

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66D: Ensign, bedrock terrace	       30	      Very limited	     	      Very limited	   	      Very limited	     
	   	Depth to bedrock Slope	1.00  0.08 	Depth to saturated zone Thin layer Piping	1.00    1.00  1.00	Depth to hard bedrock Slow refill Cutbanks cave	1.00    0.30  0.10
Nykanen, bedrock	       20	      Very limited	     	Figing      Very limited		Cutbanks cave   	
	     	Slope   Depth to bedrock   Seepage	1.00	Depth to saturated zone Thin layer Piping	1.00    1.00  1.00	Depth to hard bedrock Slow refill Cutbanks cave	1.00    0.30  0.10
66F: Ruse, bedrock	   	   	   	 		 	   
terrace	40   	Very limited   Depth to bedrock		saturated zone	  1.00	bedrock	  1.00 
	   	    -	   	Piping   Thin layer 	1.00  1.00	Slow refill   Cutbanks cave 	0.30
Ensign, bedrock terrace	   30     	  Very limited   Depth to bedrock   	1	Very limited   Depth to   saturated zone   Thin layer   Piping	  1.00    1.00  1.00	Very limited   Depth to hard   bedrock   Slow refill   Cutbanks cave	  1.00    0.30  0.10
Nykanen, bedrock terrace	   20     	  Very limited   Slope   Depth to bedrock   Seepage	1.00	   Very limited   Depth to   saturated zone   Thin layer   Piping	    1.00    1.00  1.00	bedrock	  1.00    0.30  0.10
68: Pits, quarry	    100	    Not rated 	     	    Not rated 		    Not rated 	     
69B: Escanaba	   85 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	0.03	  Very limited   Depth to water	1.00
71A: Evart	     70     	  Very limited   Seepage   	      1.00   	  Very limited   Depth to   saturated zone   Ponding   Seepage	    1.00    1.00  0.95	  Very limited   Cutbanks cave   	    1.00 
Sturgeon	   20   	  Very limited   Seepage 	    1.00 	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.43	  Very limited   Cutbanks cave   	    1.00 

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	<u> </u> 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72E:		 	 	 		 	
Deerton, dissected	40	Seepage	1.00	Somewhat limited   Thin layer	0.96	Very limited   Depth to water	1.00
	   	Slope   Depth to bedrock	1.00	Seepage   	0.42	 	
Tokiahok, dissected	30	  Very limited   Seepage	    1.00	  Somewhat limited   Thin layer	0.98	  Very limited   Depth to water	1.00
	     	Slope   Slope   Depth to cemented   pan	1.00	Seepage	0.03	Depth to water	
Trout Bay, dissected	   15 	  Very limited   Slope	    1.00	  Very limited   Organic matter	    1.00	  Very limited   Depth to hard	1.00
		Depth to bedrock	0.74	content Depth to	  1.00	bedrock Cutbanks cave	0.10
	   	 	   	saturated zone   Piping   Thin layer	  1.00  1.00	 	
72F:		 	 	 		 	
Deerton, dissected	40	  Very limited   Seepage	    1.00	Somewhat limited   Thin layer	0.96	  Very limited   Depth to water	1.00
	 	Slope   Depth to bedrock	1.00	Seepage	0.42	-   	İ
Tokiahok, dissected	25	  Very limited   Seepage	    1.00	  Somewhat limited   Thin layer	0.98	  Very limited   Depth to water	1.00
		Slope   Depth to cemented   pan	1.00	Seepage	0.03		
Trout Bay, dissected	   20 	  Very limited   Slope	    1.00	  Very limited   Organic matter	    1.00	  Very limited   Depth to hard	1.00
	<u> </u> 	Depth to bedrock Seepage	!	content Depth to	1.00	bedrock Cutbanks cave	0.10
	   	 	   	saturated zone Piping Thin layer	  1.00  1.00	   	
76C: Garlic, dissected	40	  Verv limited	 	  Somewhat limited		  Very limited	
,		Seepage   Slope	1.00	Seepage	0.91	:	1.00
Blue Lake, dissected	30		:	  Somewhat limited		  Very limited	
		Seepage   Slope	1.00	Seepage 	0.08	Depth to water	1.00
Voelker, dissected	   20 	  Very limited   Depth to cemented		  Very limited   Thin layer	    1.00	  Very limited   Depth to water	1.00
		pan   Seepage	1.00	Seepage 	0.36	 	
		Slope 	0.92 	 		 	
76E: Garlic, dissected	   40	  Very limited	 	  Somewhat limited		    Very limited	
		Seepage   Slope	1.00	Seepage	0.91	Depth to water	1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
76E: Blue Lake, dissected	     30 	    Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage	      0.08	    Very limited   Depth to water 	      1.00
Voelker, dissected	   20       	Very limited Slope Depth to cemented pan Seepage	  1.00  1.00    1.00	  Very limited   Thin layer   Seepage   	  1.00  0.36   	  Very limited   Depth to water     	1.00
76F: Garlic, dissected	   40 	  Very limited   Seepage   Slope	  1.00  1.00	  Somewhat limited   Seepage		  Very limited   Depth to water	1.00
Blue Lake, dissected	   30   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	0.08	  Very limited   Depth to water 	1.00
Voelker, dissected	   20     	Slope   Depth to cemented   pan	1.00	  Very limited   Thin layer   Seepage 	  1.00  0.36 	  Very limited   Depth to water 	1.00
77B: Garlic	     40 	    Very limited   Seepage	      1.00	    Somewhat limited   Seepage	      0.91	    Very limited   Depth to water	1.00
Blue Lake	   30 	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	    0.08	  Very limited   Depth to water	    1.00
Voelker	   20     	   Very limited   Depth to cemented   pan   Seepage		  Very limited   Thin layer   Seepage	  1.00  0.36	  Very limited   Depth to water 	  1.00 
77D: Garlic	     40 	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	      0.91	  Very limited   Depth to water 	1.00
Blue Lake	   30   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	0.08	  Very limited   Depth to water	  1.00
Voelker	   20       	  Very limited   Depth to cemented   pan   Slope   Seepage	 	  Very limited   Thin layer   Seepage   	  1.00  0.36   	  Very limited   Depth to water     	  1.00     
77E: Garlic	   <b>4</b> 0   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.91 	  Very limited   Depth to water 	1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
77E: Blue Lake	     30 	    Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.08	    Very limited   Depth to water 	      1.00
Voelker	   20       	Very limited Slope Depth to cemented pan Seepage	  1.00  1.00   	  Very limited   Thin layer   Seepage 	  1.00  0.36   	  Very limited   Depth to water   	    1.00     
88: Cathro	   55     	  Very limited   Seepage   	    1.00   	  Very limited   Depth to   saturated zone   Piping   Ponding	  1.00    1.00  1.00	  Very limited   Cutbanks cave   	  1.00   
Ensley	   35     	  Somewhat limited   Seepage   	    0.70   	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	   Very limited   Cutbanks cave   Slow refill	  1.00  0.30
93: Tawas	   70     	  Very limited   Seepage   	    1.00   	  Very limited   Depth to   saturated zone   Ponding   Seepage	    1.00    1.00  0.91	  Very limited   Cutbanks cave   	1.00
Deford	   20     	  Very limited   Seepage   	    1.00   	  Very limited   Depth to   saturated zone   Ponding   Seepage	  1.00    1.00  0.25	  Very limited   Cutbanks cave   	    1.00   
95B: Liminga	     90 	    Very limited   Seepage	      1.00	    Somewhat limited   Seepage	      0.45	    Very limited   Depth to water	      1.00
104C: Fence, dissected	   90     	  Somewhat limited   Slope   Seepage	    0.92  0.01 	  Very limited   Depth to   saturated zone   Piping	    1.00    1.00	  Very limited   Cutbanks cave   Slow refill	  1.00  0.30
109D: Rousseau	   50 	  Very limited   Seepage   Slope	  1.00  1.00	  Somewhat limited   Seepage	    0.64 	  Very limited   Depth to water	1.00
Dawson	   45         	  Very limited   Seepage     	    1.00       	   Very limited   Depth to   saturated zone   Piping   Ponding   Seepage	  1.00    1.00  1.00  0.25	  Very limited   Cutbanks cave     	    1.00       

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	 	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
109F: Rousseau	     55	: -	   	    Somewhat limited		    Very limited	
	   	Seepage   Slope 	1.00  1.00 	Seepage   	0.64	Depth to water	1.00
Dawson	   40       	   Very limited   Seepage     	  1.00     	Very limited   Depth to   saturated zone   Piping   Ponding   Seepage	  1.00    1.00  1.00  0.25	Very limited   Cutbanks cave     	  1.00     
125B:		 	 			 	
Stutts	   65 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	0.91	  Very limited   Depth to water	1.00
Kalkaska	   35 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	0.82	  Very limited   Depth to water	1.00
125D:	 	 	 	 		 	1
Stutts	   65   	  Very limited   Seepage   Slope	  1.00  1.00	Somewhat limited   Seepage	0.91	  Very limited   Depth to water 	1.00
Kalkaska	   25   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	  0.82 	  Very limited   Depth to water 	1.00
125E: Stutts	     55   	  Very limited   Seepage   Slope	    1.00  1.00	    Somewhat limited   Seepage 	      0.91	    Very limited   Depth to water 	      1.00
Kalkaska	   <b>4</b> 5 	  Very limited   Seepage   Slope	  -  1.00  1.00	  Somewhat limited   Seepage 	0.82	  Very limited   Depth to water 	1.00
135B:	 	 	 	 		 	l I
Munising, calcareous substratum	   65   	  Somewhat limited   Depth to cemented   pan   Seepage	'	  Very limited   Depth to   saturated zone   Thin layer	  1.00    1.00	  Very limited   Depth to water 	1.00
Ensley	   25   	  Somewhat limited   Seepage   	    0.70 	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Cutbanks cave   Slow refill	  1.00  0.30
145C: Munising, dissected, very stony		    Somewhat limited   Depth to cemented   pan	        1.00	    Very limited   Depth to   saturated zone	        1.00	      Very limited   Depth to water	      1.00
	     	pan   Slope   Seepage	  0.92  0.30	Saturated zone   Thin layer   Seepage	1.00	   	

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
145C:		 	 	 		 	
Yalmer, dissected,	i		İ		i		i
very stony	35	Very limited	ĺ	Very limited	İ	Very limited	ĺ
		Seepage	1.00	Depth to	1.00	Depth to water	1.00
		Depth to cemented	0.98	saturated zone			
	!	pan		Thin layer	0.98		ļ
		Slope	0.92	Seepage	0.36	 	
146B:		 	 	 		 	
Munising, stony	60	Somewhat limited	! 	  Very limited	i	  Very limited	1
3, 1	i	Depth to cemented	1.00	Depth to	1.00	Depth to water	1.00
	İ	pan	j	saturated zone	į		j
		Seepage	0.30	Thin layer	1.00		
				Seepage	0.08		
Skanee, stony	30	: -		Very limited	11 00	Somewhat limited	
		Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
		Seepage	0.30	Thin layer	1.00	Slow refill	0.70
	i			Seepage	0.01	Cutbanks cave	0.10
	į		İ		i		i
147A:	ĺ		ĺ	İ	İ	İ	ĺ
Skanee, very stony	55	Very limited		Very limited		Somewhat limited	
	!	Depth to cemented	1.00	Depth to	1.00	Depth to	0.96
		pan		saturated zone		saturated zone	
		Seepage	0.30	Thin layer	1.00	Slow refill Cutbanks cave	0.70
	1	 	 	Seepage	10.01	Cutbanks cave	10.10
Gay, very stony	35	  Somewhat limited	 	  Very limited		  Somewhat limited	i
		Seepage	0.30	Depth to	1.00	Slow refill	0.19
	İ		j	saturated zone	į	Cutbanks cave	0.10
				Ponding	1.00		
				Seepage	0.03		
148B:				 		 	
Shoepac	70	  Somewhat limited	 	  Very limited		  Very limited	l
J.I.O Op a O		Seepage	0.95		1.00	Cutbanks cave	1.00
	İ			saturated zone	i	Slow refill	0.05
	ĺ		ĺ	Seepage	0.01	İ	ĺ
					1		
Ensley	20	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to	1.00	Cutbanks cave	1.00
		 	l I	saturated zone Ponding	1.00	Slow refill	0.30
			 	Ionaing		! 	i
155A:	į		İ		i		i
Zeba, very stony	55	Somewhat limited	ĺ	Very limited	İ	Very limited	ĺ
		Depth to bedrock		Depth to	1.00	Depth to hard	1.00
		Seepage	0.30	saturated zone		bedrock	
		 	 	Thin layer	0.77	Slow refill	0.19
		 	 	Seepage 	0.03	Cutbanks cave	0.10
Jacobsville, very		! 	 	! 	1	! 	1
stony	30	Somewhat limited		  Very limited	i	  Very limited	i
-	İ	Seepage	0.70	Depth to	1.00		1.00
		Depth to bedrock	0.66	saturated zone		bedrock	
		!		Ponding	1.00	Cutbanks cave	0.10
				Thin layer	0.66		[
				Seepage	0.03		1

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	   	Rating class and limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
157B: Reade	     45 	    Somewhat limited   Depth to bedrock   Seepage	      0.91  0.70	    Very limited   Depth to   saturated zone	      1.00	    Very limited   Depth to hard   bedrock	      1.00
		 	   	Thin layer   Seepage 	0.91	Cutbanks cave	1.00
Nahma	40     	Somewhat limited   Depth to bedrock   Seepage	  0.86  0.70	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    1.00
158C:		 	   	Thin layer	0.86	Slow refill	0.30
Munising, dissected, stony	,	  Somewhat limited   Depth to cemented   pan   Slope   Seepage	  -  1.00  -  0.68  0.30	  Very limited   Depth to   saturated zone   Thin layer   Seepage	    1.00    1.00  0.08	  Very limited   Depth to water   	    1.00   
Abbaye, dissected, stony	     35   	  Somewhat limited   Depth to bedrock   Seepage   Slope	    0.81  0.70  0.68	  Very limited   Depth to   saturated zone   Thin layer	    1.00    0.81	  Very limited   Depth to hard   bedrock   Cutbanks cave	    1.00    1.00
160B:	   		   	Seepage   	0.04	Slow refill	0.30
Paquin	55     	Very limited   Seepage   Depth to cemented   pan	  1.00  1.00 	Very limited   Thin layer   Depth to   saturated zone   Seepage	  1.00  1.00      0.95	Very limited   Cutbanks cave   Depth to   saturated zone	  1.00  0.01 
Finch	   45     	  Very limited   Seepage   Depth to cemented   pan	  -  1.00  1.00  -	   Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    1.00  0.91	  Very limited   Cutbanks cave   	  1.00   
161B: Yellowdog, stony	50	  Very limited   Seepage   Depth to bedrock	1.00	  Somewhat limited   Seepage   Thin layer   Large stones	    0.91  0.81  0.50	  Very limited   Depth to water 	1.00
Buckroe, stony	   40   	  Very limited   Depth to bedrock	    1.00	  Very limited   Thin layer   Seepage	  1.00  0.91	  Very limited   Depth to water 	1.00
165B: Chocolay, very stony	   55       	  Somewhat limited   Depth to bedrock   Seepage   	    0.93  0.70 	  Very limited   Depth to   saturated zone   Large stones   Thin layer   Seepage	    1.00    0.95  0.93  0.02	  Very limited   Depth to hard   bedrock   Cutbanks cave   Large stones   Slow refill	    1.00    1.00  0.95  0.30

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
165B: Waiska, very stony	     30 	    Very limited   Seepage	      1.00	    Somewhat limited   Seepage	0.64	    Very limited   Depth to water	      1.00
166:	 		 	 		 	
Skandia	   85   	  Very limited   Seepage   Depth to bedrock	  1.00  0.83	  Very limited   Organic matter   content	1.00	  Very limited   Depth to hard   bedrock	1.00
	       		       	Depth to saturated zone Piping Ponding Thin layer	1.00    1.00  1.00  0.95	Cutbanks cave       	0.10       
167: Skandia, stony	   55 	Seepage	1.00	  Very limited   Organic matter	1.00	  Very limited   Depth to hard	1.00
	       	Depth to bedrock    -  -  -	0.83       	content Depth to saturated zone Piping Ponding Thin layer	  1.00    1.00  1.00  0.95	bedrock   Cutbanks cave     	  0.10     
Jacobsville, stony	   35 	  Somewhat limited   Seepage	    0.70	  Very limited   Depth to	    1.00	  Very limited   Depth to hard	    1.00
	     	Depth to bedrock	0.66   	saturated zone Ponding Thin layer Seepage	  1.00  0.66  0.03	bedrock   Cutbanks cave 	  0.10 
170B: Chocolay, very stony		 	   	    Very limited		    Very limited	
chocoldy, very beeny		Depth to bedrock   Seepage	0.93  0.70 	Depth to   saturated zone   Large stones   Thin layer   Seepage	1.00    0.95  0.93  0.12	Depth to hard   bedrock   Cutbanks cave   Large stones   Slow refill	1.00    1.00  0.95  0.30
171B: Paavola, very stony	       90	      Very limited	     	Seepage      Very limited		Slow Perril    -  Very limited	
	     	Seepage   Depth to cemented   pan	1.00	Depth to saturated zone Thin layer Seepage	1.00    0.88  0.66	Depth to water	1.00
172D: Buckroe, very bouldery	       70	      Very limited	     	      Very limited	     	      Very limited	     
	   	Depth to bedrock	1.00	-	1.00	Depth to water	1.00
Rock outcrop	15	  Not rated	 	  Not rated		  Not rated	1

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
172F: Buckroe, very bouldery	     70 	    Very limited   Slope   Depth to bedrock	1.00	    Very limited   Thin layer   Seepage	        1.00  0.91	    Very limited   Depth to water 	      1.00
Rock outcrop	   15 	  Not rated 	   	  Not rated 	   	  Not rated 	
176B: Croswell	   50   	  Very limited   Seepage 	    1.00 	  Very limited   Depth to   saturated zone   Seepage	  1.00    0.64	  Very limited   Cutbanks cave   Depth to   saturated zone	  1.00  0.01
Kinross	40       	  Very limited   Seepage   	    1.00   	   Very limited   Depth to   saturated zone   Ponding   Seepage	  1.00    1.00  0.95	  Very limited   Cutbanks cave   	  1.00   
181E: Frohling, dissected, stony		  -  Very limited   Slope   Depth to cemented   pan	1.00	  -  Very limited   Thin layer   Seepage 	      1.00  0.01	  -  Very limited   Depth to water  - 	      1.00   
Tokiahok, dissected, stony		  Very limited   Seepage   Slope   Depth to cemented   pan	  1.00  1.00  0.98	  Somewhat limited   Thin layer   Seepage 	0.98	  Very limited   Depth to water   	1.00
185B: McMaster	   90       	  Very limited   Seepage   	    1.00   	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.66	  Very limited   Cutbanks cave   Depth to   saturated zone	  1.00  0.01
186B: Chatham, stony	   85 	  Very limited   Seepage	    1.00	  Not limited 		  Very limited   Depth to water	1.00
186D: Chatham, stony	     85   	  Very limited   Seepage   Slope	    1.00  1.00	  Not limited     	       	  Very limited   Depth to water 	1.00
187B: Reade	   85     	  Somewhat limited   Depth to bedrock   Seepage 		  Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    0.91  0.01	bedrock Cutbanks cave	  1.00    1.00  0.30
188B: Eben, stony	     85   	  Very limited   Seepage 	      1.00	  Somewhat limited   Seepage   Large stones	      0.75  0.68	  Very limited   Depth to water	      1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	unit   	Rating class and   limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
188D: Eben, stony	     90   	  Very limited   Seepage   Slope	      1.00  1.00	  Somewhat limited   Seepage   Large stones	      0.75  0.68	  Very limited   Depth to water 	      1.00
188E: Eben, stony	   90   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage   Large stones	    0.75  0.68	  Very limited   Depth to water 	1.00
191B: Ruse	   50       	  Very limited   Depth to bedrock   	    1.00     	  Very limited   Depth to   saturated zone   Thin layer   Ponding   Seepage	  1.00    1.00  1.00  0.03	  Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
Ensign	   40         	   Very limited   Depth to bedrock   Seepage 	  1.00  0.01 	Very limited   Depth to   saturated zone   Thin layer   Organic matter   content   Seepage	  1.00    1.00  1.00    0.01		  1.00    0.30  0.10
197B: Shoepac	     50   	  Somewhat limited   Seepage 	      0.95 	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.01	  Very limited   Cutbanks cave   Slow refill	    1.00  0.05
Trenary	   40   	  Somewhat limited   Seepage   Slope	    0.30  0.08	  Somewhat limited   Seepage 	    0.03 	  Very limited   Depth to water   	1.00
198B: Shoepac	60	  Somewhat limited   Seepage 	    0.95 	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.01	  Very limited   Cutbanks cave   Slow refill	  1.00  0.05
Reade	   30       	  Somewhat limited   Depth to bedrock   Seepage 			  1.00    0.91  0.01	bedrock Cutbanks cave	  1.00    1.00  0.30
200A: Charlevoix	   55   	  Somewhat limited   Seepage	    0.30 	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Cutbanks cave   Slow refill	1.00
Ensley	30	  Somewhat limited   Seepage 	    0.70   	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Cutbanks cave   Slow refill	  1.00  0.30

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
202B: Sauxhead, very stony	   85     	    Very limited   Depth to bedrock   		Very limited Depth to saturated zone Thin layer Seepage	    1.00    1.00  0.25	  Very limited   Depth to hard   bedrock   Cutbanks cave	    1.00    0.10
206B: Traunik	     90   	  Very limited   Seepage   Slope	      1.00  0.08	  Somewhat limited   Seepage	į Į	  Very limited   Depth to water	      1.00
206D: Traunik	     90   	! <del>-</del>	    1.00  1.00	  Somewhat limited   Seepage	      0.91	  Very limited   Depth to water 	1.00
211B: Munising	     55     	  Somewhat limited   Depth to cemented   pan   Seepage		  Very limited   Depth to   saturated zone   Thin layer   Seepage	    1.00    1.00  0.08	  Very limited   Depth to water   	    1.00 
Abbaye	   35     	  Somewhat limited   Depth to bedrock   Seepage 		  Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    0.81  0.04	  Very limited   Depth to hard   bedrock   Cutbanks cave   Slow refill	  1.00    1.00  0.30
214B: Kalkaska	     60 	    Very limited   Seepage	      1.00	    Somewhat limited   Seepage	      0.64	    Very limited   Depth to water	      1.00
Blue Lake	   30 	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	0.36	  Very limited   Depth to water	1.00
214D: Kalkaska	     55 	  Very limited   Seepage   Slope	      1.00  1.00	  Somewhat limited   Seepage 	      0.64	  Very limited   Depth to water 	1.00
Blue Lake	   35   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	  0.36	  Very limited   Depth to water 	
214E: Kalkaska	     55   	  Very limited   Seepage   Slope	      1.00  1.00	  Somewhat limited   Seepage 	      0.64	  Very limited   Depth to water	    1.00
Blue Lake	   35   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.36	  Very limited   Depth to water 	    1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
221B: Jeske	     40	    Very limited   Seepage	      1.00	    Very limited   Depth to	      1.00	    Very limited   Depth to hard	      1.00
	     	Depth to bedrock	'	saturated zone   Thin layer   Seepage	  1.00  1.00  0.52	bedrock   Cutbanks cave	    1.00 
Au Train	   30 	  Somewhat limited   Depth to bedrock   Slope	    0.81  0.08	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to hard   bedrock	    1.00
	     	Seepage   	0.01	Thin layer Seepage	1.00	Cutbanks cave	0.10
Gongeau	20       	Somewhat limited   Depth to bedrock   Seepage 	  0.88  0.01 	Very limited    Depth to    saturated zone    Thin layer    Ponding	  1.00    1.00  1.00	Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
225B: Cusino		      Very limited	 	Seepage	0.52	      Very limited	
Cusino	33	Seepage	1.00	Seepage	0.91	Depth to water	1.00
225D: Cusino	   95   	  Very limited   Seepage   Slope 	    1.00  1.00	  Somewhat limited   Seepage   	    0.91 	  Very limited   Depth to water   	    1.00 
226B: Kalkaska	   50 	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	0.64	  Very limited   Depth to water	1.00
Cusino	   45 	  Very limited   Seepage 	    1.00	  Somewhat limited   Seepage 	    0.91	  Very limited   Depth to water 	1.00
226D: Kalkaska	   50 	  Very limited   Seepage   Slope	  1.00  1.00	  Somewhat limited   Seepage	0.64	  Very limited   Depth to water	    1.00
Cusino	   45   	  Very limited   Seepage   Slope 	    1.00  1.00	  Somewhat limited   Seepage   	  0.91 	  Very limited   Depth to water   	  1.00 
226E: Kalkaska	   50   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage	0.64	  Very limited   Depth to water	1.00
Cusino	   40   	  Very limited   Seepage   Slope	  1.00  1.00	  Somewhat limited   Seepage   	  0.91 	  Very limited   Depth to water   	  1.00 
226F: Kalkaska	   50 	    Very limited   Seepage   Slope	    1.00  1.00	    Somewhat limited   Seepage 	0.64	    Very limited   Depth to water 	    1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
226F: Cusino	     35   	  Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.91	    Very limited   Depth to water	      1.00
227A: Halfaday	     90     	  Very limited   Seepage 	      1.00 	Very limited Depth to saturated zone Seepage	    1.00    0.64	Very limited Cutbanks cave Depth to saturated zone	    1.00  0.01
232B: Shelldrake	     90   	  Very limited   Seepage   Slope	      1.00  0.08	  Somewhat limited   Seepage 	      0.95	  Very limited   Depth to water 	1.00
233B: Abbaye, very stony	   50     	  Somewhat limited   Depth to bedrock   Seepage 	    0.81  0.70 	  Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    0.81  0.04	  Very limited   Depth to hard   bedrock   Cutbanks cave   Slow refill	  1.00    1.00  0.30
Zeba, very stony	   35     	  Somewhat limited   Depth to bedrock   Seepage 	    0.77  0.30 	  Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    0.77  0.03	Very limited Depth to hard bedrock Slow refill Cutbanks cave	  1.00    0.19  0.10
234A: Levasseur, very stony	     55       	    Very limited   Depth to bedrock   	        1.00     	Very limited Depth to saturated zone Thin layer Seepage Large stones	      1.00    1.00  0.91  0.85	Very limited Depth to hard bedrock Large stones Cutbanks cave	      1.00    0.85  0.10
Burt, very stony	   35       	  Very limited   Depth to bedrock     	    1.00     	  Very limited   Depth to   saturated zone   Thin layer   Ponding   Seepage	  1.00    1.00  1.00  0.86	  Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
235B: Sauxhead, very stony	   60     	    Very limited   Depth to bedrock   	      1.00   	  Very limited   Depth to   saturated zone   Thin layer   Seepage	    1.00    1.00  0.25	  Very limited   Depth to hard   bedrock   Cutbanks cave	    1.00    0.10
Burt, very stony	   30       	  Very limited   Depth to bedrock     	  1.00       	  Very limited   Depth to   saturated zone   Thin layer   Ponding   Seepage	  1.00    1.00  1.00  0.86	Very limited Depth to hard bedrock Cutbanks cave	  1.00    0.10 

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
236B: Waiska, extremely bouldery	       85 	  -  Very limited   Seepage	        1.00	    Somewhat limited   Seepage	        0.64	    Very limited   Depth to water	        1.00
236D:	İ		İ		i		i
Waiska, extremely bouldery	   85   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.64 	  Very limited   Depth to water 	    1.00 
237B:				 		 	i
Chatham	65   	  Very limited   Seepage	  1.00	  Not limited   	   	  Very limited   Depth to water 	1.00
Davies	20         	Very limited   Seepage	  1.00     	Very limited    Depth to   saturated zone   Ponding   Seepage   Large stones	  1.00    1.00  0.95  0.14	Very limited  Cutbanks cave  Large stones	  1.00  0.14 
239B:					i		
Longrie	50   	Somewhat limited   Seepage   Depth to bedrock	  0.70  0.66	Somewhat limited   Thin layer   Seepage	0.66	   Very limited   Depth to water 	1.00
Shingleton	   40   	  Very limited   Depth to bedrock	 	  Very limited   Thin layer   Seepage	  1.00  0.07	  Very limited   Depth to water 	1.00
240F: Trout Bay	   30         	   Very limited   Slope   Depth to bedrock   Seepage 	  1.00  0.74  0.01 	   Very limited   Organic matter   content   Depth to   saturated zone   Piping   Thin layer	  1.00    1.00    1.00  1.00	   Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
Gongeau	   25     	   Somewhat limited   Depth to bedrock   Slope   Seepage	  0.88  0.32  0.01	   Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    1.00  0.52	   Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
Shingleton	   20 	  Very limited   Slope   Depth to bedrock	1.00	  Very limited   Thin layer   Seepage	į	  Very limited   Depth to water 	    1.00
Rock outcrop	   15	  Not rated		  Not rated		  Not rated	
241: Cathro	   55         	  Very limited   Seepage 	    1.00       	  Very limited   Organic matter   content   Depth to   saturated zone   Piping   Ponding	    1.00    1.00    1.00	  Somewhat limited   Cutbanks cave   	    0.10     

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed   excavated   ponds	
		Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
241: Gay	     35     	  Somewhat limited   Seepage   	0.30	  Very limited   Depth to   saturated zone   Ponding   Seepage	    1.00    1.00  0.03	  Somewhat limited   Slow refill   Cutbanks cave 	    0.19  0.10
242B: Kalkaska, severely burned	       95 	    Very limited   Seepage	        1.00	    Somewhat limited   Seepage	        0.64	    Very limited   Depth to water	      1.00
242D: Kalkaska, severely burned	     95   	  Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage	      0.64	    Very limited   Depth to water	
242F: Kalkaska, severely burned	       90 	  Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage	        0.64	  -  Very limited   Depth to water	      1.00
243: Markey	     95     	  Very limited   Seepage 	    1.00   	  Very limited   Depth to   saturated zone   Ponding   Seepage	    1.00    1.00  0.86	  Very limited   Cutbanks cave   	    1.00   
245B: Trout Bay	   40         	  Somewhat limited   Depth to bedrock   Seepage   	    0.74  0.01     	   Very limited   Organic matter   content   Depth to   saturated zone   Piping   Thin layer   Ponding	    1.00    1.00    1.00  1.00	Very limited Depth to hard bedrock Cutbanks cave	    1.00    0.10 
Lupton	   30         	  Very limited   Seepage     	  1.00       		  1.00    1.00    1.00  1.00	  Somewhat limited   Cutbanks cave     	  0.10       
Gongeau	   20         	  Somewhat limited   Depth to bedrock   Seepage   	  0.88  0.01   	   Very limited   Depth to   saturated zone   Thin layer   Ponding   Seepage	  1.00    1.00  1.00  0.52	Very limited Depth to hard bedrock Cutbanks cave	  1.00    0.10
246B: Garlic	     90 	  Very limited   Seepage	      1.00	  Somewhat limited   Seepage	0.91	  Very limited   Depth to water	1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed   excavated   ponds	
	 	Rating class and   limiting features	Value	Rating class and   limiting features	Value 	Rating class and   limiting features	Value
246D: Garlic	     90 	    Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.91	    Very limited   Depth to water	      1.00
246E: Garlic	     90   	  Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.91	    Very limited   Depth to water	      1.00
248B: Escanaba	     50	    Very limited   Seepage	      1.00	    Somewhat limited   Seepage	0.03	    Very limited   Depth to water	1.00
Greylock	   40 	  Somewhat limited   Seepage	    0.70	  Somewhat limited   Seepage	    0.03	  Very limited   Depth to water	    1.00
248D: Escanaba	     50 	    Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.03	    Very limited   Depth to water 	      1.00
Greylock	   40   	  Very limited   Slope   Seepage	    1.00  0.70	  Somewhat limited   Seepage 	    0.03 	  Very limited   Depth to water 	    1.00 
248E: Escanaba	   50 	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.03	  Very limited   Depth to water	1.00
Greylock	   40   	  Very limited   Slope   Seepage	    1.00  0.70	  Somewhat limited   Seepage 	    0.03 	  Very limited   Depth to water   	  1.00 
249B: Sauxhead	   55     	  Very limited   Depth to bedrock   	    1.00   	  Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    1.00  0.25	  Very limited   Depth to hard   bedrock   Cutbanks cave	1.00
Skandia	   35         	Very limited Seepage Depth to bedrock	  1.00  0.83   	   Very limited   Organic matter   content   Depth to   saturated zone   Piping   Ponding	  1.00    1.00    1.00  1.00	   Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    0.10
250B: Chocolay, extremely stony	               	    Somewhat limited   Depth to bedrock   Seepage	          0.93  0.70	Thin layer	1.00   0.95         1.00     0.95   0.93   0.02	   Very limited   Depth to hard   bedrock   Cutbanks cave   Large stones   Slow refill	      1.00    1.00  0.95  0.30

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed   excavated   ponds	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
250B: Jacobsville, extremely stony	       30       	     Somewhat limited   Seepage   Depth to bedrock 	      0.70  0.66   	   Very limited   Depth to   saturated zone   Ponding   Thin layer   Seepage	      1.00    1.00  0.66  0.03	 	      1.00    0.10
251B: Greylock	     90 	    Somewhat limited   Seepage 	      0.70	    Somewhat limited   Seepage 	0.03	    Very limited   Depth to water 	1.00
251D: Greylock	   85   	  Very limited   Slope   Seepage	    1.00  0.70	  Somewhat limited   Seepage 	    0.03	  Very limited   Depth to water 	1.00
252A: Finch	   50     	  Very limited   Seepage   Depth to cemented   pan	1.00	  Very limited   Depth to   saturated zone   Thin layer   Seepage	    1.00    1.00  0.91	  Very limited   Cutbanks cave   	    1.00   
Kinross	   40       	  Very limited   Seepage   	    1.00     	   Very limited   Depth to   saturated zone   Ponding   Seepage	  1.00    1.00  0.95	  Very limited   Cutbanks cave   	  1.00   
254C: Kalkaska, dissected	     55 	  Very limited   Seepage   Slope	    1.00  0.92	  Somewhat limited   Seepage 	    0.64	  Very limited   Depth to water 	    1.00
Blue Lake, dissected	   35   	  Very limited   Seepage   Slope	    1.00  0.92	  Somewhat limited   Seepage 	    0.36 	  Very limited   Depth to water   	    1.00 
254E: Kalkaska, dissected	   55   	  Very limited   Seepage   Slope	  1.00  1.00	  Somewhat limited   Seepage	    0.64	  Very limited   Depth to water	1.00
Blue Lake, dissected	   35     	  Very limited   Seepage   Slope	  -  1.00  1.00	  Somewhat limited   Seepage   	    0.36 	  Very limited   Depth to water   	  1.00 
254F: Kalkaska, dissected	   55 	  Very limited   Seepage   Slope	  1.00  1.00	  Somewhat limited   Seepage	    0.64	  Very limited   Depth to water	1.00
Blue Lake, dissected	   35   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.36 	  Very limited   Depth to water 	    1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
255D: Wallace	   95       	  Very limited   Seepage   Depth to cemented   pan   Slope	    1.00  1.00 	  Very limited   Thin layer   Seepage 	    1.00  0.93	  Very limited   Depth to water   	      1.00   
256B: Whitewash	     95 	    Very limited   Seepage	      1.00	    Somewhat limited   Seepage	      0.91	    Very limited   Depth to water	      1.00
266A: Spot	   50           	  Very limited   Seepage   Depth to cemented   pan 	1.00		  1.00  1.00  1.00    1.00  0.64	  Very limited   Cutbanks cave     	  1.00       
Finch	   40       	  Very limited   Seepage   Depth to cemented   pan 	1.00	   Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    1.00  0.91	  Very limited   Cutbanks cave     	  1.00     
267A: Finch	   85     	  Very limited   Seepage   Depth to cemented   pan	1.00	  Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    1.00  0.91	  Very limited   Cutbanks cave 	1.00
268C: Munising, calcareous substratum, dissected	į	    Somewhat limited   Depth to cemented   pan   Seepage   Slope		 	        1.00    1.00	    Very limited   Depth to water 	      1.00
Frohling, calcareous substratum, dissected	İ	  -   Somewhat limited   Depth to cemented   pan   Seepage   Slope	'	    Somewhat limited   Thin layer   Seepage 	      0.98  0.01	  -  Very limited   Depth to water  - 	    1.00   
Cookson, dissected	   20     	Somewhat limited   Seepage   Slope   Depth to bedrock	  0.70  0.68  0.66	  Somewhat limited   Thin layer 	    0.66   	  Very limited   Depth to water   	  1.00 

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct.   of  map  unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	<u> </u>	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
269E: Frohling, calcareous substratum,	     	 	     	 	     	 	     
dissected	50       	Depth to cemented pan	  1.00  0.98    0.70	Somewhat limited   Thin layer   Seepage 	  0.98  0.01 	Very limited   Depth to water   	  1.00   
Garlic, dissected	   20   	Seepage	    1.00  1.00	  Somewhat limited   Seepage 	    0.91 	  Very limited   Depth to water   	  1.00 
Cookson, dissected	20     	Slope	  1.00  0.70  0.66	Somewhat limited   Thin layer 	  0.66   	  Very limited   Depth to water 	1.00
272C: Munising, calcareous substratum,	     	 	     	 	     	   	     
dissected	40     	1 2	  1.00    0.81  0.68	Very limited   Depth to   saturated zone   Thin layer	  1.00    1.00	Very limited   Depth to water   	1.00
Yalmer, calcareous substratum, dissected	       30	1 2	      1.00	Very limited Depth to	        1.00	    Very limited   Depth to water	1.00
Frohling, calcareous	     	Slope Depth to cemented pan	0.92  0.91 	saturated zone   Thin layer   Seepage 	  0.91  0.07 	 	
substratum, dissected	İ		    0.98    0.92  0.70	  Somewhat limited   Thin layer   Seepage 	    0.98  0.01 	  Very limited   Depth to water   	    1.00   
275B: Munising, calcareous substratum		  Somewhat limited   Depth to cemented   pan	į	  Very limited   Depth to   saturated zone	1.00	    Very limited   Depth to water	1.00
Cookson	     40 	  Somewhat limited	0.81      0.70  0.66	Thin layer    Somewhat limited   Thin layer 	0.99      0.66	    Very limited   Depth to water 	      1.00
281E: Mongo, dissected	     95 		      1.00	    Somewhat limited   Piping	      0.11	    Very limited   Depth to water	      1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	unit   	Rating class and	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
282B: Furlong	     50   	   Very limited   Seepage   Depth to bedrock   Slope	    1.00  0.99  0.08	  Very limited   Thin layer   Seepage	      0.99  0.86	  Very limited   Depth to water   	    1.00
Shingleton	   40   	  Very limited   Depth to bedrock 	    1.00 	  Very limited   Thin layer   Seepage	    1.00  0.07	  Very limited   Depth to water   	    1.00
282D: Furlong	     50   	   Very limited   Seepage   Slope   Depth to bedrock	1.00	  Very limited   Thin layer   Seepage	    0.99  0.86	  Very limited   Depth to water 	1.00
Shingleton	   40 	  Very limited   Depth to bedrock   Slope		  Very limited   Thin layer   Seepage	  1.00  0.07	  Very limited   Depth to water 	    1.00
284B: Steuben	     40   	  Very limited   Seepage   Depth to cemented   pan	    1.00  1.00	  Very limited   Thin layer   Seepage 	      1.00  0.91	  Very limited   Depth to water   	      1.00
Blue Lake	   30 	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	    0.36	  Very limited   Depth to water	    1.00
Kalkaska	   20 	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	0.64	  Very limited   Depth to water	1.00
284D: Steuben	     40     	  Very limited   Seepage   Slope   Depth to cemented   pan	    1.00  1.00	  Very limited   Thin layer   Seepage 	    1.00  0.91	  Very limited   Depth to water   	    1.00 
Blue Lake	   25 		    1.00  1.00	  Somewhat limited   Seepage	    0.36	  Very limited   Depth to water 	1.00
Kalkaska	   25 	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.64 	  Very limited   Depth to water 	    1.00
284E: Steuben	   40     	  Very limited   Seepage   Slope   Depth to cemented   pan	1.00	  Very limited   Thin layer   Seepage 	    1.00  0.91 	  Very limited   Depth to water   	    1.00   
Blue Lake	   30 	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.36 	  Very limited   Depth to water 	    1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
284E: Kalkaska	     20 	    Very limited   Seepage   Slope	      1.00	    Somewhat limited   Seepage 	      0.64	    Very limited   Depth to water 	      1.00
285B: Halfaday	     50   	    Very limited   Seepage 	      1.00	    Very limited   Depth to   saturated zone   Seepage	      1.00    0.64	  Very limited   Cutbanks cave   Depth to   saturated zone	    1.00  0.01
Kinross	   40     	  Very limited   Seepage 	    1.00   	  Very limited   Depth to   saturated zone   Ponding   Seepage	  1.00    1.00  0.95	  Very limited   Cutbanks cave   	  1.00 
286B: Greylock	     50 	    Somewhat limited   Seepage	      0.70	    Somewhat limited   Seepage	0.03	    Very limited   Depth to water	      1.00
Cookson	   40 	  Somewhat limited   Seepage   Depth to bedrock	0.70	  Somewhat limited   Thin layer 	  0.66	  Very limited   Depth to water 	    1.00
287B: McMaster	     55   	  Very limited   Seepage 	      1.00 	  Very limited   Depth to   saturated zone   Seepage	      1.00    0.66	  Very limited   Cutbanks cave   Depth to   saturated zone	    1.00  0.01
Davies	   35       	  Very limited   Seepage   	  1.00     	  Very limited   Depth to   saturated zone   Ponding   Seepage   Large stones	  1.00    1.00  0.95  0.14	  Very limited   Cutbanks cave   Large stones   	  1.00  0.14 
290A: Namur, very stony	     50 	  Very limited   Depth to bedrock   Seepage	:	    Very limited   Piping   Thin layer	      1.00  1.00	    Very limited   Depth to water 	      1.00
Ruse, very stony	   40       	  Very limited   Depth to bedrock     		   Very limited   Depth to   saturated zone   Thin layer   Ponding   Seepage	  1.00    1.00  1.00  0.03	  Very limited   Depth to hard   bedrock   Cutbanks cave 	  1.00    0.10
292B: Mashek, sandy substratum	       90   	    Very limited   Seepage   	        1.00	  Very limited   Depth to   saturated zone   Seepage	        1.00    0.91	    Very limited   Depth to water   	      1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
296D: Islandlake	     55 	  Very limited   Seepage   Slope	      1.00	    Somewhat limited   Seepage 	      0.79	    Very limited   Depth to water 	    1.00
McMillan	   35   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.58 	  Very limited   Depth to water 	  1.00 
296E: Islandlake	   55 	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.79	  Very limited   Depth to water	1.00
McMillan	   35   	  Very limited   Seepage   Slope	  1.00  1.00	  Somewhat limited   Seepage 	    0.58 	  Very limited   Depth to water 	1.00
297B: Rubicon, severely burned	       95	    Very limited   Seepage	        1.00	    Somewhat limited   Seepage	        0.82	    Very limited   Depth to water	1.00
297D: Rubicon, severely burned	       95   	    Very limited   Seepage   Slope	        1.00	    Somewhat limited   Seepage	        0.82	    Very limited   Depth to water	      1.00
298B: Wurtsmith	   55     	    Very limited   Seepage   	      1.00 	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.91	  Very limited   Cutbanks cave   Depth to   saturated zone	  1.00  0.01
Deford	   35       	  Very limited   Seepage 	  1.00   	   Very limited   Depth to   saturated zone   Ponding   Seepage	  1.00    1.00  0.25	  Very limited   Cutbanks cave   	  1.00 
299F: Shelldrake	     99   	  Very limited   Seepage   Slope 	      1.00  1.00	  Somewhat limited   Seepage   	      0.95 	  Very limited   Depth to water   	    1.00 
300F: Shelldrake	   61 	  Very limited   Seepage   Slope	  1.00  1.00	  Somewhat limited   Seepage 	    0.95	  Very limited   Depth to water 	    1.00
Dune land	   38 	  Not rated 	   	  Not rated 	   	  Not rated 	   
301F: Cookson, dissected	   55     	  Very limited   Slope   Seepage   Depth to bedrock	  1.00  0.70  0.66	  Somewhat limited   Thin layer   	    0.66   	  Very limited   Depth to water   	  1.00 

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed   excavated   ponds	
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
301F: Nykanen, dissected	   35     	  Very limited   Slope   Depth to bedrock   Seepage	1.00	  Very limited   Depth to   saturated zone   Thin layer   Piping	    1.00    1.00	  Very limited   Depth to hard   bedrock   Slow refill   Cutbanks cave	    1.00    0.30  0.10
302B: Dillingham	     45   	  Very limited   Seepage   Depth to cemented   pan	1.00	  Very limited   Thin layer   Seepage	    1.00  0.75	  Very limited   Depth to water 	1.00
Kalkaska	40	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	0.64	  Very limited   Depth to water	1.00
302D: Dillingham	   52     	   Very limited   Seepage   Slope   Depth to cemented   pan	1.00	  Very limited   Thin layer   Seepage 	    1.00  0.68 	  Very limited   Depth to water   	    1.00   
Kalkaska	   45   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	  0.64	  Very limited   Depth to water 	1.00
302E: Dillingham	   50     	  Very limited   Seepage   Slope   Depth to cemented   pan	1.00	  Very limited   Thin layer   Seepage 	    1.00  0.68 	  Very limited   Depth to water   	    1.00   
Kalkaska	   40 	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage	  0.64	  Very limited   Depth to water 	    1.00
302F: Dillingham	   50     	  Very limited   Seepage   Slope   Depth to cemented   pan	1.00	  Very limited   Thin layer   Seepage 	    1.00  0.68 	  Very limited   Depth to water   	    1.00   
Kalkaska	   40 	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage	    0.64 	  Very limited   Depth to water 	    1.00
303B: Kiva	     55 	  Very limited   Seepage	      1.00	    Somewhat limited   Seepage	0.95	    Very limited   Depth to water	1.00
Trenary	30	  Somewhat limited   Seepage	    0.30	  Somewhat limited   Seepage	0.03	  Very limited   Depth to water	1.00
303D: Kiva	     55   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	      0.95	  Very limited   Depth to water 	      1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	<u> </u> 	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
303D: Trenary	     30   	  Very limited   Slope   Seepage	    1.00  0.30	  Somewhat limited   Seepage 	      0.03	  Very limited   Depth to water 	1.00
303E: Kiva	     55 	  Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.95	    Very limited   Depth to water 	      1.00
Trenary	   30   	  Very limited   Slope   Seepage	    1.00  0.30	  Somewhat limited   Seepage 	    0.03 	  Very limited   Depth to water   	  1.00 
305B: Wurtsmith	   55     	  Very limited   Seepage   Slope	  1.00  0.08	  Very limited   Depth to   saturated zone   Seepage	  1.00    0.91	  Very limited   Cutbanks cave   Depth to   saturated zone	  1.00  0.01
Meehan	   40     	  Very limited   Seepage   	    1.00   	  Very limited   Depth to   saturated zone   Seepage	  -  1.00    0.91	  Very limited   Cutbanks cave   	1.00
306C: Deerton, dissected	   35   	  Very limited   Seepage   Slope   Depth to bedrock	  -  1.00  0.68  0.52	  Somewhat limited   Thin layer   Seepage	    0.96  0.42	  Very limited   Depth to water 	1.00
Tokiahok, dissected	   30     	  Very limited   Seepage   Slope   Depth to cemented   pan	  1.00  1.00  0.98	  Somewhat limited   Thin layer   Seepage 	  0.98  0.03 	  Very limited   Depth to water   	  1.00 
Jeske, dissected	   20     	   Very limited   Seepage   Depth to bedrock   Slope	  1.00  0.83  0.32	   Very limited   Depth to   saturated zone   Thin layer   Seepage	  1.00    1.00  0.52	   Very limited   Depth to hard   bedrock   Cutbanks cave	  1.00    1.00
307B: Rubicon, very deep water table	       95 	    Very limited   Seepage	        1.00	    Somewhat limited   Seepage	        0.82	    Very limited   Depth to water	1.00
307D: Rubicon, very deep water table	     95   	    Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	        0.82	  -  Very limited   Depth to water 	      1.00
308B: Rubicon	   55 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	0.82	  Very limited   Depth to water	1.00
Sultz	   40 	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	    0.25	  Very limited   Depth to water	1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed   excavated   ponds	
	   	Rating class and limiting features	Value 	Rating class and limiting features	Value	Rating class and limiting features	Value
308D: Rubicon	     55   	  Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.82	    Very limited   Depth to water 	    1.00
Sultz	   40   	   Very limited   Seepage   Slope	  1.00  1.00	Somewhat limited   Seepage	0.25	  Very limited   Depth to water 	1.00
309B: Rubicon, deep water table	     95     	    Very limited   Seepage 	      1.00   	    Somewhat limited   Seepage   	        0.82	Very limited Cutbanks cave Depth to saturated zone	      1.00  0.90
309D: Rubicon, deep water table	     95     	  Very limited   Seepage   Slope	    1.00  1.00	    Somewhat limited   Seepage   	      0.82   	  Very limited   Cutbanks cave   Depth to   saturated zone	    1.00  0.90
310B: Kalkaska, burned	     90 	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	0.64	  Very limited   Depth to water	1.00
310D: Kalkaska, burned	     95   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage	    0.64 	  Very limited   Depth to water	1.00
310E: Kalkaska, burned	     95   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	    0.64 	  Very limited   Depth to water 	1.00
311B: Kalkaska, very deep water table, burned	     95 	    Very limited   Seepage	      1.00	    Somewhat limited   Seepage	      0.64	    Very limited   Depth to water	1.00
311D: Kalkaska, very deep water table, burned	     95   	    Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.64 	    Very limited   Depth to water 	      1.00
312B: Islandlake, burned	     95 	    Very limited   Seepage	      1.00	    Somewhat limited   Seepage	0.79	  Very limited   Depth to water	1.00
312D: Islandlake, burned	     95   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage 	      0.79	  Very limited   Depth to water	1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct. of map	reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	unit   	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
313B: Kalkaska, deep water table, burned		    Very limited   Seepage	        1.00	    Somewhat limited   Seepage	        0.64	    Very limited   Depth to water	        1.00
314B: Blue Lake, very deep water table, burned	:	    Very limited   Seepage	      1.00	    Somewhat limited   Seepage	      0.36	    Very limited   Depth to water	      1.00
315B: Blue Lake, deep water table, burned	     95     	     Very limited   Seepage   	      1.00   	    Somewhat limited   Seepage   	0.36	  Very limited   Cutbanks cave   Depth to   saturated zone	    1.00  0.90
316B: Blue Lake, burned	     95 	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	    0.36	  Very limited   Depth to water	1.00
316D: Blue Lake, burned	     95   	  Very limited   Seepage   Slope	    1.00  1.00	  Somewhat limited   Seepage	    0.36	  Very limited   Depth to water 	1.00
317B: Kalkaska, very deep water table	       95 	  Very limited   Seepage	        1.00	    Somewhat limited   Seepage	        0.64	    Very limited   Depth to water	
317D: Kalkaska, very deep water table	       95   	    Very limited   Seepage   Slope	        1.00	    Somewhat limited   Seepage	        0.64	    Very limited   Depth to water	      1.00
318B: Islandlake, very deep water table	       95 	    Very limited   Seepage	        1.00	    Somewhat limited   Seepage	        0.79	    Very limited   Depth to water	1.00
318D: Islandlake, very deep water table	       95   	  Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage	        0.79	  -  Very limited   Depth to water	
319B: Islandlake	     95 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	      0.79	  Very limited   Depth to water	1.00
319D: Islandlake	     95 	    Very limited   Seepage   Slope	      1.00  1.00	    Somewhat limited   Seepage 	      0.79	    Very limited   Depth to water 	      1.00

Table 15a.--Water Management--Continued

Map symbol and soil name	Pct.	Pond reservoir		Embankments, dikes, and		Aquifer-fed excavated	
and polit name	map  unit	areas		levees		ponds	
		Rating class and	Value		Value		Value
	<u> </u>	limiting features	<u> </u>	limiting features	<u> </u>	limiting features	<del> </del>
319E:	 					 	
Islandlake	95	Very limited	i	Somewhat limited	i	  Very limited	i
	į	Seepage	1.00	Seepage	0.79	Depth to water	1.00
	İ	Slope	1.00				İ
319F:	 			 		 	
Islandlake	95	Very limited	İ	Somewhat limited	i	  Very limited	i
	İ	Seepage	1.00	Seepage	0.79	Depth to water	1.00
		Slope	1.00				
320B:	 					 	
Kalkaska, deep water							
table	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Cutbanks cave	1.00
						Depth to	0.90
				 		saturated zone	1
321B:				 		 	
Kalkaska	50	Very limited	į	Somewhat limited	į	Very limited	į
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
Deerton	45	  Very limited		  Somewhat limited		  Very limited	
		Seepage	1.00	Thin layer	0.96	Depth to water	1.00
		Depth to bedrock	0.52	Seepage	0.42		
321D:	 			 		 	
Kalkaska	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	1.00	 		 	
Deerton	45	  Very limited		  Somewhat limited		  Very limited	
		Seepage	1.00	Thin layer	0.96	Depth to water	1.00
		Slope	1.00	Seepage	0.42		
		Depth to bedrock	0.52				

### Table 15b.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map	waterways		Drainage   	
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
10: Beaches	    100	    Not rated	   	    Not rated	
11C: Deer Park	     90   	  Somewhat limited   Droughty   Slope	    0.85  0.62	  Very limited   Cutbanks cave   Deep to water	    1.00  1.00
11E: Deer Park	   95     	  Very limited   Slope   Droughty	    1.00  0.85	  Very limited   Cutbanks cave   Deep to water   Slope	  1.00  1.00  1.00
11F: Deer Park	     98   	  Very limited   Slope   Droughty	    1.00  0.85	  Very limited   Slope   Cutbanks cave   Deep to water	    1.00  1.00
12B: Rubicon	     90   	    Somewhat limited   Droughty   Slope	    0.93  0.16	  Very limited   Cutbanks cave   Deep to water	    1.00  1.00
12D: Rubicon	     95     	  Very limited   Slope   Droughty	    1.00  0.93	  Very limited   Cutbanks cave   Deep to water   Slope	  1.00  1.00  0.37
12E: Rubicon	     95   	  Very limited   Slope   Droughty	    1.00  0.93	  Very limited   Slope   Cutbanks cave   Deep to water	    1.00  1.00
13B: Kalkaska	     94   	  Somewhat limited   Droughty   Slope	      0.87  0.16	  Very limited   Cutbanks cave   Deep to water	    1.00  1.00
13D: Kalkaska	96   96     	  Very limited   Slope   Droughty	    1.00  0.87	  Very limited   Cutbanks cave   Deep to water   Slope	  1.00  1.00  0.37
13E: Kalkaska	  100     	  Very limited   Slope   Droughty	    1.00  0.87	  Very limited   Slope   Cutbanks cave   Deep to water	    1.00  1.00  1.00

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	waterways		Drainage   	
	unit   	'	Value	   Rating class and   limiting features	Valu
15A:	 	[ [	 	 	
Croswell	92	Somewhat limited	İ	Very limited	i
	ĺ	Depth to	0.86	Depth to	1.00
		saturated zone		saturated zone	
		Droughty	0.19	Cutbanks cave	1.00
	 	Slope	0.04	 	
L6A:	į				į
Paquin	90	Very limited		Very limited	
		Droughty	1.00	Depth to thin	1.00
		Depth to	0.86	cemented pan	
	 	saturated zone	  0.01	Depth to saturated zone	1.00
	 	Slope	<b>0.01</b> 	Cutbanks cave	1.00
L7A: Au Gres	   92	  Very limited	 	  Very limited	
Au Gles	52	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Droughty	0.80	Cutbanks cave	1.00
	į		ĺ		į
l8: Kinross	   92	  Very limited	 	  Very limited	
		Depth to	1.00	Depth to	1.00
	İ	saturated zone	İ	saturated zone	i
	ĺ	Droughty	0.04	Cutbanks cave	1.00
	 	 	 	Ponding	1.00
19:			 		
Deford	92	Very limited		Very limited	!
		Depth to	1.00		1.00
		saturated zone	 	saturated zone	
	 	 	 	Cutbanks cave	1.00
		 	 	Fonding	
21A: Ingalls		 	 	 	
ingails	90 	Very limited   Depth to	1.00	Very limited   Depth to	1.00
	 	saturated zone	1	saturated zone	1
		Restricted	0.35	Cutbanks cave	1.00
	į	permeability			
24B:	 	[ 	 	[ 	
Munising	90	Very limited	į	Very limited	į
		Depth to cemented	1.00		1.00
		pan		cemented pan	
		Depth to	1.00		1.00
	 	saturated zone	   0 0 E	saturated zone Cutbanks cave	1 00
	 	Droughty Slope	0.95  0.36	Dense layer	1.00
	 	Slope   Water erosion	0.36	nemse raker	10.50
	!		J • ± /	I	1

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	waterways		Drainage	
	unit   	!	Value	Rating class and limiting features	Value
25B:					
Munising	55	  Very limited	l I	  Very limited	
Munising	33	Depth to cemented	1 00	-	1.00
	l I	: -	1	Depth to thick cemented pan	1
	l I	pan Depth to	1.00	Depth to	1.00
	 	saturated zone	1	saturated zone	1
	 	Droughty	0.95	Cutbanks cave	1.00
	 	Slope	0.36	Dense layer	0.50
	i	Water erosion	0.17	Dembe layer	0.50
	i	"4001 01001011	0.17		
Yalmer	30	  Very limited	 	  Very limited	1
		Depth to	1.00	Depth to	1.00
	i	saturated zone		saturated zone	i
	i	Depth to cemented	1.00	Cutbanks cave	1.00
	i	pan	į	Depth to thin	0.90
	İ	Droughty	1.00	cemented pan	i
	İ	Slope	0.36	Dense layer	0.50
	į		j		İ
25D:					
Munising	55	Very limited		Very limited	
		Depth to cemented	1.00	Depth to thick	1.00
		pan		cemented pan	
		Depth to	1.00		1.00
		saturated zone		saturated zone	
		Slope	1.00	Cutbanks cave	1.00
		Droughty	0.95	Dense layer	0.50
		Water erosion	0.17	Slope	0.37
Yalmer	30	Very limited		Very limited	
		Depth to	1.00	Depth to	1.00
	 	saturated zone	  1 00	saturated zone Cutbanks cave	1.00
	l I	Depth to cemented pan	1	Depth to thin	0.90
	l I	Slope	1.00	cemented pan	10.30
	 	Droughty	1.00	Dense layer	0.50
	i			Slope	0.37
	i		<u> </u>		
31D:	i		İ		i
Trenary	85	  Very limited	İ	Very limited	İ
_	İ	Slope	1.00	Deep to water	1.00
	İ	Water erosion	0.56	Cutbanks cave	1.00
	İ		ĺ	Dense layer	0.50
	ĺ		ĺ	Slope	0.16
33:					
Ensley	90	Very limited	ļ	Very limited	
		Depth to	1.00	· -	1.00
		saturated zone		saturated zone	
		Water erosion	0.89		1.00
				Frost action	1.00
	i .	I	1	Ponding	1.00

Table 15b.--Water Management--Continued

Map symbol	Pct.	Grassed		Drainage	
and soil name	of map	waterways		 	
	unit				
		Rating class and	Value	Rating class and	Valu
		limiting features		limiting features	
35B:	 	 	 	 	
Munising, calcareous	 		! 		i
substratum	40	Very limited	j	Very limited	i
		Depth to cemented	1.00	Depth to thick	1.00
		pan		cemented pan	
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
	 	Slope	0.16 0.13	Cutbanks cave	1.00
	 	Droughty Water erosion	0.13	Dense layer	10.50
				 	i
Yalmer, calcareous	İ		İ		i
substratum	30	Very limited		Very limited	
		Depth to	1.00	Depth to thick	1.00
		saturated zone		cemented pan	
	 	Depth to cemented	1.00	Depth to	1.00
	 	pan Droughty	  0.97	saturated zone Cutbanks cave	1.00
	 	Slope	0.16	Dense layer	0.50
	! 			Dembe layer	
Frohling, calcareous	<u> </u>		İ		ĺ
substratum	20	Very limited	ĺ	Very limited	İ
		Depth to cemented	1.00	Depth to thick	1.00
		pan		cemented pan	
		Slope	0.62	Cutbanks cave	1.00
	 	Water erosion 	0.01 	Deep to water Dense layer	1.00
	İ	İ	İ	_	į
37B:					
Grand Sable	90	Somewhat limited		Very limited	
	 	Droughty	0.05	Deep to water	1.00
37E:	 	 	 	 	
Grand Sable	98	Somewhat limited	! 	  Very limited	i
	İ	Droughty	0.05	Deep to water	1.00
	ĺ				İ
38B:					
Rhody	60	Very limited		Very limited	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	 	Depth to bedrock	l Inga	Cutbanks cave	1.00
	! 	Water erosion	0.56	Frost action	1.00
	<u> </u>			Ponding	1.00
	İ	İ	İ	Depth to bedrock	0.99
Towes	30	Very limited		Very limited	
	 	Depth to saturated zone	1.00	-	1.00
	 	saturated zone   Depth to bedrock	   1 . 00	Depth to saturated zone	1
			0.56	Cutbanks cave	1.00
		Slope	0.04	Frost action	1.00
40B:					[
Waiska, very stony	90			Very limited	
	 	Droughty	1.00	Cutbanks cave	1.00
	l	Slope	0.16	Deep to water	1.00

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	Grassed waterways		Drainage   		
	unit	Í		<u> </u>		
	 	Rating class and   limiting features	Value	Rating class and limiting features	Value	
42:	 	 				
Davies	90	Very limited	į	Very limited	İ	
		Depth to	1.00	_	1.00	
		saturated zone		saturated zone		
	 	Cobble content Droughty	0.94	Cutbanks cave	1.00	
		Dioughty		Ponding	1.00	
	İ		İ	Large stones	0.14	
46:	 	 		 		
Jacobsville, very	 	 				
stony	90	  Very limited	į	  Very limited	i	
	ĺ	Depth to	1.00	Depth to bedrock	1.00	
		saturated zone		Depth to	1.00	
		Depth to bedrock	1.00	saturated zone		
	 	Water erosion	0.01	Frost action Cutbanks cave	1.00	
				Ponding	1.00	
					ļ	
47C: Deerton	   55	  Very limited		  Very limited		
Deercon	33	Depth to bedrock	:	Depth to bedrock	1 . 00	
		Slope	1.00	Cutbanks cave	1.00	
	į	Droughty	0.83	Deep to water	1.00	
Au Train	   30	  Very limited		  Very limited		
114 114111	30	Depth to soft	1.00	Depth to bedrock	1.00	
		bedrock		Depth to	1.00	
		Depth to	1.00	saturated zone		
		saturated zone		Cutbanks cave	1.00	
		Droughty	1.00	 		
	 	Slope 	0.36			
47E:	į	į	į		į	
Deerton	55	Very limited		Very limited		
	 	Depth to bedrock Slope	1.00	Depth to bedrock Cutbanks cave	1.00	
		Droughty	0.83	Deep to water	1.00	
				Slope	1.00	
Au Train		  Very limited		 		
Au IIain	30	Depth to soft	1.00	Very limited   Depth to bedrock	1.00	
		bedrock		Depth to	1.00	
	İ	Depth to	1.00	saturated zone	į	
		saturated zone		Cutbanks cave	1.00	
		Droughty	1.00	Slope	0.63	
	 	Slope 	1.00	 		
48:	İ		İ		İ	
Burt	90	Very limited		Very limited		
		Depth to bedrock	1	Depth to bedrock		
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	
	!	!	1 00			
		Droughty	1.00	Ponding	1.00	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map			Drainage   	
	unit		i		
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
49B:	 	 		 	
Cookson	90	  Very limited   Water erosion	1.00	  Very limited   Depth to bedrock	1.00
	 	Depth to bedrock   Slope	1.00  0.04	Deep to water Cutbanks cave	1.00  1.00
51:	 	 		 	
Nahma	50	Very limited		Very limited	
	 	Depth to saturated zone	1.00	Depth to bedrock Depth to	1.00
	 	Water erosion	1.00	saturated zone	
		Depth to bedrock	!	!	1.00
	İ	Restricted	1.00	Frost action	1.00
		permeability		Ponding	1.00
Ruse	   40	  Very limited		  Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Droughty	0.93	Frost action	1.00
	 	Water erosion 	0.56	Ponding Cutbanks cave	1.00
52B: Summerville	   85	  Very limited		  Very limited	
	İ	Depth to bedrock	1.00	Depth to bedrock	1.00
	ĺ	Water erosion	1.00	Deep to water	1.00
		Droughty	0.93	Cutbanks cave	1.00
	 	Slope	0.04	]	
57:			ļ		į
Carbondale	30	Very limited		Very limited	
		Depth to	1.00	Depth to	1.00
	 	saturated zone		saturated zone	1 00
		 		Organic matter	1.00
				Frost action	1.00
				Ponding	1.00
	 	 		Cutbanks cave	1.00
Lupton	30	Very limited	:	Very limited	į
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
	 	 		Organic matter content	1.00
	İ	İ	į	Frost action	1.00
				Ponding	1.00
		 		Cutbanks cave	1.00
Tawas	30	  Very limited		  Very limited	
		Depth to	1.00	-	1.00
		saturated zone		saturated zone	
				Cutbanks cave	1.00
				Frost action	1.00
	 	 		Ponding	1.00
	l I	] [	1	Organic matter content	1.00
	!	1	1	1	1

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	waterways		Drainage   	
		Rating class and limiting features	Value	Rating class and   limiting features	Value
58: Dawson	   30         	  Very limited   Depth to   saturated zone   	    1.00       	  Very limited   Depth to   saturated zone   Cutbanks cave   Frost action   Ponding   Organic matter   content	    1.00    1.00  1.00  1.00
Greenwood	   30         	  Very limited   Depth to   saturated zone 	    1.00       	saturated zone Organic matter content Frost action Ponding	  1.00    1.00    1.00  1.00
Loxley	   30           	  Very limited   Depth to   saturated zone   	    1.00         	Cutbanks cave    Very limited     Depth to     saturated zone     Organic matter     content     Frost action     Ponding     Cutbanks cave	1.00    1.00    1.00    1.00  1.00
59: Chippeny	   55         	   Very limited   Depth to   saturated zone   Water erosion   Depth to bedrock	1.00    1.00	   Very limited   Depth to bedrock   Depth to   saturated zone   Frost action   Cutbanks cave   Ponding	    1.00  1.00    1.00  1.00
Nahma	   30           	Very limited Depth to saturated zone Water erosion Depth to bedrock Restricted permeability	1.00    1.00	Depth to saturated zone	  1.00  1.00    1.00  1.00
60: Histosols	   50         	  Very limited   Depth to   saturated zone 	    1.00       	Very limited Ponding Depth to saturated zone Organic matter content Frost action	  1.00  1.00    1.00 
Aquents	   50         	   Very limited   Depth to   saturated zone   	  1.00       	   Very limited   Ponding   Depth to   saturated zone   Frost action   Cutbanks cave	  1.00  1.00    1.00  1.00

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	waterways		Drainage   	
	unit   	   Rating class and   limiting features	:	   Rating class and   limiting features	Value
61: Pits	    100	    Not rated		    Not rated 	     
62F: Udipsamments	50	    Not rated		    Not rated	
Udorthents	50	  Not rated 	   	  Not rated 	
64B: Kiva	     90   	  Somewhat limited   Droughty   Water erosion   Slope	    0.32  0.17  0.16	  Very limited   Cutbanks cave   Deep to water	    1.00  1.00
64D: Kiva	     90   	  Very limited   Slope   Droughty   Water erosion	    1.00  0.32  0.17	  Very limited   Cutbanks cave   Deep to water   Slope	  1.00  1.00  0.16
65D: Jeske, bedrock terrace	     45         	 	1.00	Depth to saturated zone	      1.00  1.00    1.00
Gongeau, bedrock terrace	   25           	   Very limited   Depth to soft   bedrock   Depth to   saturated zone   Droughty   Slope	  1.00    1.00    0.54  0.04	  Very limited   Depth to bedrock   Depth to   saturated zone   Frost action   Cutbanks cave	  1.00  1.00    1.00  1.00
Deerton, bedrock terrace	   20     	  Very limited   Depth to bedrock   Slope   Droughty	  1.00  1.00  0.83	  Very limited   Depth to bedrock   Cutbanks cave   Deep to water   Slope	  1.00  1.00  1.00  0.84
65F: Jeske, bedrock terrace	     45       	  Very limited   Depth to   saturated zone   Depth to bedrock   Droughty   Slope	      1.00    1.00  0.94  0.36	  Very limited   Depth to bedrock   Depth to   saturated zone   Cutbanks cave	      1.00  1.00    1.00

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.	Grassed waterways		Drainage		
and boll name	map	_				
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Valu	
CER.						
65F: Gongeau, bedrock		 		 		
terrace	25	  Very limited	i	  Very limited	i	
	į	Depth to soft	1.00	Depth to bedrock	1.00	
	İ	bedrock	İ	Depth to	1.00	
		Depth to	1.00	saturated zone		
		saturated zone		Frost action	1.00	
	 	Droughty Slope	0.54	Cutbanks cave	1.00	
	į	_	į		į	
Deerton, bedrock terrace	20	  Very limited		  Very limited		
0011400	=0	Depth to bedrock	1.00	Depth to bedrock	1.00	
	İ	Slope	1.00	Cutbanks cave	1.00	
	į	Droughty	0.83	Deep to water	1.00	
				Slope	1.00	
66D:	 	 		 		
Ruse, bedrock					İ	
terrace	40	Very limited	1.00	Very limited	11 00	
	 	Depth to soft bedrock	1.00	Depth to bedrock Depth to	1.00	
		Depth to	1.00	saturated zone	1	
		saturated zone		Frost action	1.00	
	İ	Water erosion	1.00	Cutbanks cave	1.00	
	İ	Restricted	0.60		İ	
	 	permeability		 		
Ensign, bedrock			į		į	
terrace	30	Very limited   Depth to soft	1.00	Very limited   Depth to bedrock	1 00	
		bedrock	1	Depth to Dedrock	1.00	
		Depth to	1.00	saturated zone		
	İ	saturated zone	i	Cutbanks cave	1.00	
	ĺ	Water erosion	1.00		İ	
		Droughty	0.70			
Nykanen, bedrock		 		 		
terrace	20	Very limited		Very limited		
		Depth to soft	1.00	Depth to bedrock		
		bedrock		Depth to	1.00	
		Depth to saturated zone	1.00	saturated zone	11 00	
	 	Saturated zone   Water erosion	1.00	Cutbanks cave	1.00	
		Slope	1.00	blobe		
66F:		 		 		
Ruse, bedrock		 		 		
terrace	40	Very limited		Very limited		
		Depth to soft	1.00	Depth to bedrock	1	
		bedrock		Depth to	1.00	
		Depth to	1.00	saturated zone		
		saturated zone		Frost action	1.00	
	 	Water erosion	1.00	Cutbanks cave	1.00	
	1	Droughty	0.72	 	1	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	Grassed   waterways 		Drainage   	
	unit				
	   	·	Value	Rating class and limiting features	Value
66F:	 		 		
Ensign, bedrock terrace	   30 	  Very limited   Depth to soft	    1.00	  Very limited   Depth to bedrock	1 00
	   	bedrock   Depth to	    1.00	Depth to Dedrock   Depth to   saturated zone	1.00
	   	saturated zone   Water erosion	1.00	Cutbanks cave	1.00
	 	Droughty	0.70	 	İ İ
Nykanen, bedrock terrace	   20	  Very limited	 	  Very limited	
	 	Depth to soft bedrock	1.00 	Depth to bedrock	1.00  1.00
	 	Depth to saturated zone	1.00 	saturated zone   Slope	  1.00
	 	Water erosion   Slope	1.00	Cutbanks cave	1.00
68: Pits, quarry	    100	    Not rated	   	    Not rated	
69B:			   		
	   85 	  Somewhat limited   Slope	    0.16	  Very limited   Cutbanks cave	1.00
	   		   	Deep to water	1.00
71A: Evart	   70	    Very limited	j 	    Very limited	j I
	 	Depth to saturated zone	1.00 	Flooding   Depth to	1.00  1.00
	 	Water erosion 	0.89 	saturated zone Cutbanks cave	  1.00
	 	 	 	Frost action Ponding	1.00
Sturgeon	20	  Very limited		  Very limited	
	   	Depth to   saturated zone   Water erosion	1.00    0.89	Flooding   Depth to   saturated zone	1.00
	   	water erosion	0.09	Cutbanks cave	1.00
72E:	   	 	   	Frost action   	
Deerton, dissected	   40 	  Very limited   Slope	    1.00	  Very limited   Depth to bedrock	1 100
	   	Depth to bedrock   Droughty	!	Cutbanks cave Deep to water	1.00
	   	Dioughey   	   	Deep to water   Slope 	1.00
Tokiahok, dissected	30	  Very limited   Slope	    1.00	  Very limited   Depth to thick	1.00
	 	Depth to cemented pan		cemented pan Cutbanks cave	1.00
	 	Droughty	0.95	Deep to water	1.00
	 			Dense layer	0.50

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.	Grassed waterways		Drainage		
	map  unit	 		 		
	unit   	'	Value	Rating class and limiting features	Value	
72E:	 	l	 	l		
Trout Bay, dissected	15	  Very limited	 	  Very limited		
-	İ	Depth to soft	1.00	Depth to bedrock	1.00	
		bedrock		Depth to	1.00	
		Depth to	1.00	saturated zone		
	 	saturated zone	  1.00	Frost action   Slope	1.00  1.00	
					ļ	
72F:		 		  Vamus limited		
Deerton, dissected	<del>1</del> 0	Slope	1.00	Very limited   Depth to bedrock	1 00	
		Depth to bedrock	!	Slope	1.00	
	İ	Droughty	0.83	Cutbanks cave	1.00	
	ĺ		ĺ	Deep to water	1.00	
Tokiahok, dissected	   25	  Very limited	 	  Very limited		
TONIAMON, GIBBECCEG	23	Slope	1.00	Depth to thick	1.00	
		Depth to cemented	1.00	cemented pan	ĺ	
	ĺ	pan	ĺ	Slope	1.00	
		Droughty	0.95	Cutbanks cave	1.00	
				Deep to water	1.00	
	 	 	 	Dense layer	0.50	
Trout Bay, dissected	20	  Very limited		  Very limited		
	ĺ	Depth to soft	1.00	Depth to bedrock	1.00	
		bedrock		Slope	1.00	
		Slope	1.00	Depth to	1.00	
	 	Depth to saturated zone	1.00 	saturated zone	1.00	
T.C.						
76C: Garlic, dissected	   40	  Somewhat limited	 	  Very limited		
,		Slope	0.95	Cutbanks cave	1.00	
	į	Droughty	0.74	Deep to water	1.00	
Blue Lake, dissected	   30	  Somewhat limited	 	  Very limited		
	İ	Slope	0.95	Cutbanks cave	1.00	
		Droughty	0.23	Deep to water	1.00	
Voelker, dissected	   20	  Verv limited	 	  Very limited	 	
,		Droughty	1.00	Depth to thin	1.00	
	İ	Slope	0.95	cemented pan	į	
				Cutbanks cave	1.00	
			 	Deep to water	1.00	
76E:	 	[ 	 	[ 		
Garlic, dissected	40	Very limited	İ	  Very limited	İ	
		Slope	1.00	Cutbanks cave	1.00	
		Droughty	0.74	Deep to water	1.00	
	 	 	 	Slope 	1.00	
Blue Lake, dissected	30	  Very limited		  Very limited		
		Slope	1.00	Cutbanks cave	1.00	
		Droughty	0.23	Deep to water	1.00	
	1	I	I	Slope	1.00	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.	Grassed   waterways		Drainage 		
	map  unit	 		 		
	unii c   	Rating class and   limiting features	Value	Rating class and limiting features	Value	
76E:						
Voelker, dissected	20	Very limited   Droughty	1.00	Very limited   Depth to thin	1.00	
	 	Slope	1.00	cemented pan	1	
	 	blobe		Cutbanks cave	1.00	
	İ		i	Deep to water	1.00	
				Slope	1.00	
76F: Garlic, dissected	   40	  Vorus limited		  Very limited		
Gallic, dissected	40	Slope	1.00	Slope	1.00	
		Droughty	0.74	Cutbanks cave	1.00	
	j	j	į	Deep to water	1.00	
Blue Lake, dissected	30	: -		Very limited		
	 	Slope	1.00	Slope Cutbanks cave	1.00	
	 	Droughty	0.23	Deep to water	1.00	
Voelker, dissected	20	Very limited	į	Very limited	İ	
 		Slope	1.00	Depth to thin	1.00	
		Droughty	1.00	cemented pan		
	 			Slope Cutbanks cave	1.00	
	 	 		Deep to water	1.00	
			i			
77B:		!				
Garlic	40	Somewhat limited		Very limited		
	 	Droughty   Slope	0.74	Cutbanks cave Deep to water	1.00	
Blue Lake	30	Somewhat limited	į	Very limited	İ	
		Droughty	0.23	Cutbanks cave	1.00	
		Slope	0.16	Deep to water	1.00	
Voelker	   20	  Very limited		  Very limited	 	
VOCINCI	20	Droughty	1.00	Depth to thin	1.00	
	j	Slope	0.16	cemented pan	į	
		[		Cutbanks cave	1.00	
	 			Deep to water	1.00	
77D:	 	 		 		
Garlic	40	  Very limited		  Very limited	i	
	j	Slope	1.00	Cutbanks cave	1.00	
		Droughty	0.74	Deep to water	1.00	
	 			Slope	0.16	
Blue Lake	   30	  Very limited		  Very limited		
Dide Dake	30 	Slope	1.00	Cutbanks cave	1.00	
	İ	Droughty	0.23	Deep to water	1.00	
		!	[	Slope	0.16	
11						
Voelker	20	Very limited   Droughty	1.00	Very limited	11 00	
	 	Droughty   Slope	1.00	Depth to thin cemented pan	1.00	
				Cutbanks cave	1.00	
	İ	İ	i	Deep to water	1.00	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of	!		Drainage 	
	map  unit			l	
		Rating class and limiting features	Value	Rating class and limiting features	Value
77E:	 	 		 	
Garlic	40	  Very limited		  Very limited	i
		Slope	1.00	Slope	1.00
		Droughty	0.74	Cutbanks cave	1.00
		 		Deep to water	1.00
Blue Lake	30	  Very limited		  Very limited	
	İ	Slope	1.00	Slope	1.00
	ĺ	Droughty	0.23	Cutbanks cave	1.00
				Deep to water	1.00
Voelker	   20	  Very limited		  Very limited	
		Slope	1.00	Depth to thin	1.00
	İ	Droughty	1.00	cemented pan	İ
				Slope	1.00
				Cutbanks cave	1.00
	 	 		Deep to water	1.00
88:	İ				İ
Cathro	55	Very limited	1	Very limited	
		Depth to	1.00	:	1.00
	 	saturated zone		saturated zone Cutbanks cave	1.00
	 	 		Frost action	1.00
				Ponding	1.00
	į	į		Organic matter	1.00
	 	l I		content	
Ensley	35	  Very limited		  Very limited	
	ĺ	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Water erosion	0.89	Cutbanks cave	1.00
	 	 		Frost action   Ponding	1.00
93: Tawas	70	  Very limited		  Very limited	
1awas	70 	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
	İ	İ	İ	Cutbanks cave	1.00
				Frost action	1.00
				Ponding	1.00
	 	l		Organic matter content	1.00
Deford	20	Very limited		Very limited	
		Depth to	1.00		1.00
	 	saturated zone	1	saturated zone Cutbanks cave	1.00
				Ponding	1.00
95B:	 	 		 	
Liminga	90	  Somewhat limited		  Very limited	
-	İ	Droughty	0.25	Cutbanks cave	1.00
			0.16	Deep to water	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of	!		Drainage 	
	map				
	unit		1	 	1
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
.04C:	 				
Fence, dissected	90			Very limited	
		Water erosion	1.00	Depth to	1.00
	 	Depth to saturated zone	1.00	saturated zone Cutbanks cave	1.00
	 	Slope	0.95	Cutbanks cave   Frost action	1.00
	   	Restricted permeability	0.60		
	 	permeability			
09D: Rousseau	   50	  Very limited		  Very limited	
Nousseau	50	Slope	1.00	Cutbanks cave	1.00
		Droughty	0.84	Deep to water	1.00
	   	 	İ	Slope	0.37
Dawson	45	  Very limited	İ	  Very limited	i
	ĺ	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
	 	 		Cutbanks cave	1.00
	 	 		Frost action Ponding	1.00
	! 	 		Organic matter	1.00
į		 	į	content	į
09F:	   				
Rousseau  55	55	Very limited   Slope	1.00	Very limited   Cutbanks cave	1.00
	 	Droughty	0.84	Deep to water	1.00
				Slope	1.00
Dawson	40	  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00
	 	saturated zone		saturated zone Cutbanks cave	1.00
	 	 		Frost action	1.00
	 		i	Ponding	1.00
	   	 	İ	Organic matter	1.00
25B: Stutts	   65	  Somewhat limited		  Very limited	
	İ	Water erosion	0.17	Cutbanks cave	1.00
	 	Slope Droughty	0.16	Deep to water	1.00
Kalkaska	25	İ	İ	 	į
Naikaska	33	Somewhat limited   Droughty	0.72	Very limited   Cutbanks cave	1.00
	!   	Slope	0.04	Deep to water	1.00
25D:	 	 		 	
Stutts	65	Very limited	'	Very limited	
	 	Slope	1.00	Cutbanks cave	1.00
	 	Water erosion   Droughty	0.17	Deep to water	1.00
Kalkaska	25	  Very limited		  Very limited	
	İ	Slope	1.00	Cutbanks cave	1.00
		Droughty	0.72	Deep to water	1.00
	1			Slope	0.37

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.   Grassed		Drainage		
	unit   	'	Value	Rating class and   limiting features	Value
125E:	 	 	 		
Stutts	   55   	  Very limited   Slope   Water erosion	  1.00  0.17	  Very limited   Slope   Cutbanks cave	  1.00  1.00
		Droughty	0.01	Deep to water	1.00
Kalkaska	   45     	  Very limited   Slope   Droughty	    1.00  0.72	  Very limited   Slope   Cutbanks cave   Deep to water	  1.00  1.00
				Deep to water	
135B: Munising, calcareous substratum	:	    Very limited	   	    Very limited	
substratum	65	Depth to cemented pan	  1.00 	<u>-</u>	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
	 	Droughty	0.34	Cutbanks cave	1.00
	 	Slope   Water erosion	0.16	Dense layer	0.50
Ensley	25	  Very limited	i I	  Very limited	İ
		Depth to	1.00	_	1.00
		saturated zone		saturated zone	
		Water erosion	0.89	Cutbanks cave	1.00
			 	Frost action Ponding	1.00
145C: Munising, dissected,	   	   	   	   	   
very stony	:	  Very limited	İ	  Very limited	i
		Depth to cemented	1.00	Depth to thick	1.00
		pan		cemented pan	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.95	Cutbanks cave	1.00
	į	Droughty	0.95	Dense layer	0.50
	 	Water erosion	0.17 	[ 	
Yalmer, dissected,			į		į
very stony	35 	Very limited   Depth to	  1.00	Very limited   Depth to	1.00
		saturated zone		saturated zone	
	İ	Depth to cemented	1.00		1.00
		pan		Depth to thin	0.90
	 	Droughty   Slope	1.00  0.95	cemented pan Dense layer	0.50
146B:	 	[ ]	 	[ 	
Munising, stony	60	  Very limited		  Very limited	i
		Depth to cemented pan	1.00 	Depth to thick cemented pan	1.00
	i	Depth to	1.00	Depth to	1.00
	İ	saturated zone		saturated zone	İ
		Droughty	0.95	Cutbanks cave	1.00
		Water erosion	0.17	Dense layer	0.50
		Slope	0.16	  -	1

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.	Grassed   waterways		Drainage 	
	map				
	unit	'			
		Rating class and   limiting features	Value	Rating class and   limiting features	Value
			<u> </u>		<u> </u>
146B:			İ	İ	i
Skanee, stony	30	Very limited		Very limited	
		Depth to cemented	1.00	:	1.00
		pan		cemented pan	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	1.00	Frost action	1.00
		Water erosion	0.01	Cutbanks cave	1.00
	j	j	į	Dense layer	0.50
147A:					
Skanee, very stony	55			Very limited	
		Depth to cemented	1.00	: -	1.00
	 	pan Depth to	1.00	cemented pan Depth to	1.00
		saturated zone		saturated zone	
	İ	Droughty	1.00	Frost action	1.00
	İ	Water erosion	0.01	Cutbanks cave	1.00
				Dense layer	0.50
Gay, very stony	35	: -	  1.00	Very limited   Depth to	1.00
	 	Depth to saturated zone	<b>1.</b> 00	saturated zone	1
		Water erosion	0.17	Frost action	1.00
	İ		İ	Cutbanks cave	1.00
	İ	İ	ĺ	Ponding	1.00
148B:	=0	 		 	
Shoepac	/0	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone		saturated zone	
	İ	Water erosion	0.89	Cutbanks cave	1.00
	İ	Slope	0.16	Dense layer	0.50
Ensley	20	Very limited		Very limited	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Water erosion	0.89	Cutbanks cave	1.00
				Frost action	1.00
	İ	j	İ	Ponding	1.00
155A:					
Zeba, very stony	55		:	Very limited	1 00
		Depth to saturated zone	1.00	Depth to bedrock Depth to	1.00
		Depth to bedrock	1.00	saturated zone	
		Slope	0.04	Frost action	1.00
	İ	Water erosion	0.01	Cutbanks cave	1.00
Jacobsville, very					
stony	30	Very limited   Depth to		Very limited	1 00
	 	Depth to   saturated zone	1.00	Depth to bedrock Depth to	1.00
		Depth to bedrock	1.00	saturated zone	
	1	: -	!	!	1
		Water erosion	0.01	Frost action	1.00
		Water erosion	0.01 	Frost action   Cutbanks cave	1.00

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	waterways		Drainage   		
	unit   	!	Value	   Rating class and   limiting features	Valu	
157B:	 		 			
Reade	45	  Very limited	İ	  Very limited	İ	
		Depth to	1.00			
		saturated zone Depth to bedrock	  1 00	Depth to saturated zone	1.00	
		:	0.89	Cutbanks cave	1.00	
	į	Droughty	0.04		İ	
		Slope	0.04	 		
Nahma	40	  Very limited		  Very limited	i	
		Depth to	1.00	Depth to bedrock	1	
		saturated zone		Depth to	1.00	
		Water erosion Depth to bedrock	1.00  1.00	saturated zone Cutbanks cave	1.00	
		Restricted	1.00	Frost action	1.00	
	į	permeability	į	Ponding	1.00	
158C:	 		 			
Munising, dissected,			į		į	
stony	50	Very limited		Very limited		
	 	Depth to cemented pan	<b>1.</b> 00	Depth to thick cemented pan	1.00	
		Depth to	1.00	Depth to	1.00	
	į	saturated zone	İ	saturated zone	İ	
		Droughty	0.95	Cutbanks cave	1.00	
	 	Slope Water erosion	0.83 0.17	Dense layer 	0.50	
	į		į		į	
Abbaye, dissected, stony	   35	  Very limited	 	  Very limited		
•	į	Depth to	1.00	Depth to bedrock	1.00	
		saturated zone		Depth to	1.00	
		Depth to bedrock		saturated zone		
	 	Slope   Water erosion	0.83  0.17	Cutbanks cave	1.00	
160B:		 		 		
Paquin	55	  Very limited	 	  Very limited		
-	į	Droughty	1.00	Depth to thin	1.00	
		Depth to	0.86	cemented pan		
		saturated zone		Depth to	1.00	
	 	Slope 	0.16 	saturated zone Cutbanks cave	1.00	
Finch		  Very limited		  Very limited		
FINCH	4:5	· -	1.00	<u>-</u>	1.00	
		saturated zone		cemented pan		
	į	Droughty	1.00	Depth to	1.00	
		Slope	0.04	saturated zone Cutbanks cave	1.00	
				Cacbanks cave		
l61B: Yellowdog, stony	50	  Very limited	 	  Very limited		
TOTTOWAGG, SCORY			1.00		1.00	
	į	Depth to bedrock			1.00	
		Cobble content	0.89	Large stones	0.50	
Buckroe, stony	40	  Very limited	 	  Very limited		
		Depth to bedrock	1.00		1.00	
		Droughty	1.00	Deep to water	1.00	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	waterways		Drainage   	
	unit   	· ————————————————————————————————————	Value	   Rating class and   limiting features	Value
165B: Chocolay, very stony	   55       	Depth to saturated zone Depth to bedrock Droughty Slope	1.00	Very limited   Depth to bedrock   Depth to   saturated zone   Cutbanks cave   Large stones	  1.00  1.00    1.00  0.95
		CODDIE CONTENT		 	
Waiska, very stony	30     	   Droughty   Slope	  1.00  0.16	Very limited   Cutbanks cave   Deep to water	  1.00  1.00
166: Skandia	   85           	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    1.00     	Very limited   Depth to bedrock   Depth to   saturated zone   Organic matter   content   Frost action   Ponding	  1.00  1.00    1.00    1.00
167: Skandia, stony	     55         	   Very limited   Depth to   saturated zone   Depth to bedrock	1.00	Very limited   Depth to bedrock   Depth to   saturated zone   Organic matter   content   Frost action   Ponding	   1.00  1.00    1.00    1.00
Jacobsville, stony	   35           	Very limited   Depth to   saturated zone   Depth to bedrock   Water erosion	  1.00    1.00  0.01 	Very limited   Depth to bedrock   Depth to   saturated zone   Frost action   Cutbanks cave   Ponding	  1.00  1.00    1.00  1.00
170B: Chocolay, very stony	   90           	Depth to saturated zone Depth to bedrock Droughty Slope	1.00		  1.00  1.00    1.00  0.95
171B: Paavola, very stony	90	  Very limited   Depth to cemented   pan   Depth to   saturated zone   Droughty   Slope	    1.00    1.00    1.00	cemented pan	    1.00    1.00    1.00  0.50

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.   Grassed			Drainage   		
	unit   	· <del></del>	Value	   Rating class and   limiting features	Value	
172D: Buckroe, very bouldery	       70   	      Very limited   Depth to bedrock   Droughty		Very limited Depth to bedrock Deep to water	      1.00  1.00	
Rock outcrop	15	Not rated		  Not rated	į	
172F:	 		 	 		
Buckroe, very bouldery	   70   	  Very limited   Depth to bedrock   Droughty		  Very limited   Depth to bedrock   Deep to water	    1.00  1.00	
Rock outcrop	   15	  Not rated	   	  Not rated 	 	
176B: Croswell	     50     	Depth to   saturated zone   Droughty	    0.86    0.19  0.16	saturated zone	    1.00    1.00	
Kinross	   40     	  Very limited   Depth to   saturated zone   Droughty 	  -  1.00    0.04	  Very limited   Depth to   saturated zone   Cutbanks cave   Ponding	  1.00    1.00  1.00	
181E: Frohling, dissected, stony		Depth to cemented pan Slope		cemented pan Cutbanks cave	      1.00    1.00  1.00  0.50	
Tokiahok, dissected, stony		-	    1.00  1.00    0.95	Very limited   Depth to thick   cemented pan   Cutbanks cave   Deep to water   Slope   Dense layer	  1.00    1.00  1.00  1.00	
185B: McMaster	     90         	  Somewhat limited   Depth to   saturated zone   Droughty   Slope   Cobble content	    0.86    0.69  0.04  0.03	  Very limited   Depth to   saturated zone   Cutbanks cave 	    1.00    1.00 	
186B: Chatham, stony	   85     	  Somewhat limited   Slope 	    0.16 	  Very limited   Cutbanks cave   Deep to water	    1.00  1.00	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	Grassed waterways		Drainage   	
	unit				
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
186D: Chatham, stony	     85     	  Very limited   Slope   	      1.00   	  Very limited   Cutbanks cave   Deep to water   Slope	    1.00  1.00  0.37
187B: Reade	   85         	Very limited   Depth to   saturated zone   Depth to bedrock   Water erosion   Droughty   Slope	  1.00  1.00  0.89  0.04  0.04	   Very limited   Depth to bedrock   Depth to   saturated zone   Cutbanks cave	  1.00  1.00      1.00
188B: Eben, stony	     85   	  Somewhat limited   Droughty   Cobble content   Slope	    0.89  0.50  0.16	  Very limited   Cutbanks cave   Deep to water   Large stones	  1.00  1.00  0.68
188D: Eben, stony	     90     	  Very limited   Slope   Droughty   Cobble content	    1.00  0.89  0.50	  Very limited   Cutbanks cave   Deep to water   Large stones   Slope	    1.00  1.00  0.68  0.37
188E: Eben, stony	     90     	  Very limited   Slope   Droughty   Cobble content	    1.00  0.89  0.50	  Very limited   Slope   Cutbanks cave   Deep to water   Large stones	    1.00  1.00  1.00  0.68
191B: Ruse	     50       	   Very limited   Depth to bedrock   Depth to   saturated zone   Droughty   Water erosion	   1.00  1.00   0.93   0.56	   Very limited   Depth to bedrock   Depth to   saturated zone   Frost action   Ponding   Cutbanks cave	    1.00  1.00    1.00  1.00
Ensign	   40         		1	: -	  1.00  1.00    1.00  1.00
197B: Shoepac	50   50     	  Very limited   Depth to   saturated zone   Water erosion   Slope	  1.00    0.89  0.04	   Very limited   Depth to   saturated zone   Cutbanks cave   Dense layer	  1.00    1.00  0.50

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.	Grassed waterways		Drainage 		
	map	•				
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value	
197B:		 		 		
Trenary	40	  Somewhat limited   Water erosion   Slope	0.56	  Very limited   Deep to water   Cutbanks cave	  1.00  1.00	
		blobe		Dense layer	0.50	
198B:		l I		 		
Shoepac	60	  Very limited		  Very limited		
		Depth to	1.00	-	1.00	
		saturated zone		saturated zone		
		Water erosion   Slope	0.89	Cutbanks cave Dense layer	1.00	
		blope		Delise Tayer		
Reade	30	Very limited	İ	Very limited	İ	
		Depth to	1.00	Depth to bedrock		
		saturated zone	1.00	Depth to saturated zone	1.00	
	1	Depth to bedrock Water erosion	0.89	Cutbanks cave	1.00	
		Droughty	0.04			
	į	Slope	0.04		İ	
200A:						
ZUUA: Charlevoix	   55	  Very limited		  Very limited		
		Depth to	1.00	Depth to	1.00	
	ĺ	saturated zone	İ	saturated zone	İ	
		Water erosion	1.00	Cutbanks cave	1.00	
		Restricted	0.15	Frost action	1.00	
		permeability Slope	0.04	Dense layer	0.50	
		slope	0.04			
Ensley	30	Very limited	İ	Very limited	İ	
		Depth to	1.00	Depth to	1.00	
		saturated zone		saturated zone	!	
		Water erosion	0.89	Cutbanks cave	1.00	
		 		Frost action Ponding	1.00	
		 		Ponding		
202B:	į	İ	į		į	
Sauxhead, very stony	85			Very limited		
		Depth to soft bedrock	1.00	Depth to bedrock Depth to	1.00	
		Depth to	1.00	saturated zone	1	
	i	saturated zone			i	
	İ	Droughty	1.00		j	
		Water erosion	0.01			
206B:		 		 		
Traunik	90	Somewhat limited	İ	  Very limited	i	
		Droughty	0.80	Cutbanks cave	1.00	
		Slope	0.36	Deep to water	1.00	
		Cobble content	0.11	[ 		
206D:	İ		İ		İ	
		War limited	1	Very limited	1	
Traunik	90	Very limited	1 -		1 -	
Traunik	90	Slope	1.00	Cutbanks cave	1.00	
Traunik	90     		1.00  0.80  0.11		1.00  1.00  0.16	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of	Grassed   waterways		Drainage 		
	map  unit			 		
	 	Rating class and limiting features	Value 	Rating class and limiting features	Value 	
211B:	 		 	 		
Munising	55	Very limited		Very limited		
		Depth to cemented	1.00	_	1.00	
		pan Depth to	1.00	cemented pan Depth to	1.00	
		saturated zone		saturated zone		
	ĺ	Droughty	0.95	Cutbanks cave	1.00	
		Water erosion	0.17	Dense layer	0.50	
	 	Slope 	0.16 	 		
Abbaye	35	  Very limited		  Very limited	İ	
		Depth to	1.00	Depth to bedrock	1.00	
		saturated zone		Depth to	1.00	
	 	Depth to bedrock Water erosion	1.00  0.17	saturated zone Cutbanks cave	1.00	
		Slope	0.16	cacbanks cave		
	İ		İ		İ	
214B: Kalkaska		  Somewhat limited	 	  Very limited		
kaikaska  	00	Droughty	0.87	Cutbanks cave	1.00	
	İ	Slope	0.16	Deep to water	1.00	
Plan Tale						
Blue Lake	30	Somewhat limited   Droughty	  0.23	Very limited   Cutbanks cave	1.00	
		Slope	0.16	Deep to water	1.00	
214D:		 	 	 		
Kalkaska	55	  Very limited	 	  Very limited		
	į	Slope	1.00	Cutbanks cave	1.00	
		Droughty	0.87	Deep to water	1.00	
	 		 	Slope	0.37	
Blue Lake	35	  Very limited		  Very limited		
		Slope	1.00	Cutbanks cave	1.00	
		Droughty	0.23	Deep to water	1.00	
	 		 	Slope 	0.37	
214E:	į		į		į	
Kalkaska	55	Very limited		Very limited		
	 	Slope   Droughty	1.00  0.87	Slope Cutbanks cave	1.00	
				Deep to water	1.00	
					ļ	
Blue Lake	35	Very limited		Very limited		
	 	Slope Droughty	1.00  0.23	Slope Cutbanks cave	1.00	
				Deep to water	1.00	
221B:		l	 	 		
ZZIB: Jeske	40	  Very limited	 	  Very limited		
	į	Depth to	1.00	<u>-</u>	1.00	
		saturated zone		Depth to	1.00	
		Depth to bedrock		saturated zone		
		Droughty	0.94	Cutbanks cave	1.00	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of	Grassed   waterways		Drainage 		
	map			!		
	unit 	   Rating class and	Value	Rating class and	Value	
		limiting features	<u> </u>	limiting features	<u>i                                      </u>	
221B:		 		 		
Au Train	30	Very limited	[	Very limited		
		Depth to soft	1.00	_		
	İ	bedrock Depth to	1.00	Depth to saturated zone	1.00	
	 	saturated zone	1	Cutbanks cave	1.00	
		Droughty	1.00			
		Slope	0.36		į	
Gongeau		  Very limited		  Very limited		
Gongeau	20	Depth to soft	1.00	Depth to bedrock	1.00	
		bedrock		Depth to	1.00	
	İ	Depth to	1.00	saturated zone	İ	
		saturated zone		Frost action	1.00	
	 	Droughty	0.54	Ponding	1.00	
225B:						
Cusino	95	Somewhat limited	İ	Very limited	İ	
		Droughty	0.92	Cutbanks cave	1.00	
		Slope	0.16	Deep to water	1.00	
225D:			İ			
Cusino	95	Very limited		Very limited		
		Slope	1.00	Cutbanks cave	1.00	
		Droughty	0.92	Deep to water	1.00	
226B:						
Kalkaska	50	Somewhat limited   Droughty	0.87	Very limited   Cutbanks cave	1.00	
		Slope	0.16	Deep to water	1.00	
	İ	i -	į	·	į	
Cusino	45	Somewhat limited		Very limited		
	 	Droughty Slope	0.92	Cutbanks cave Deep to water	1.00	
		Blobe		Deep to water		
226D:			į		į	
Kalkaska	50	Very limited		Very limited		
	 	Slope   Droughty	1.00	Cutbanks cave Deep to water	1.00	
		Diougney		Slope	0.37	
			į		į	
Cusino	45	Very limited	1	Very limited		
	 	Slope Droughty	1.00	Cutbanks cave Deep to water	1.00	
	 	Diougney		Slope	0.37	
226E: Kalkaska	   50	  Very limited		  Very limited		
	33	Slope	1.00	_	1.00	
	j	Droughty	0.87	Cutbanks cave	1.00	
				Deep to water	1.00	
Cusino	40	  Very limited		  Very limited		
			1 00		1 00	
		Slope	1.00	Slope	1.00	
		Slope   Droughty	0.92	Cutbanks cave	1.00	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	waterways		Drainage   	
1	unit   	Rating class and limiting features		   Rating class and   limiting features	Value
226F:		 		 	
Kalkaska	50	  Very limited		  Very limited	
	į	Slope	1.00	_	1.00
		Droughty	0.87	Cutbanks cave	1.00
				Deep to water	1.00
Cusino	   35	  Very limited		  Very limited	
		Slope	1.00	_	1.00
	İ	Droughty	0.92	-	1.00
	į		į	Deep to water	1.00
227A:		l		 	
Halfaday	90	  Somewhat limited		  Very limited	
•	İ	Depth to	0.86	_	1.00
	İ	saturated zone	İ	saturated zone	İ
		Droughty	0.17	Cutbanks cave	1.00
		Slope	0.04		
232B:		 			
Shelldrake	90	Somewhat limited	i	  Very limited	i
	ĺ	Droughty	0.98	Cutbanks cave	1.00
		Slope	0.36	Deep to water	1.00
233B:	 	 		 	
Abbaye, very stony	50	  Very limited	i	  Very limited	i
	į	Depth to	1.00	Depth to bedrock	1.00
		saturated zone		Depth to	1.00
		Depth to bedrock		saturated zone	
		Water erosion	0.17	Cutbanks cave	1.00
		Slope 			
Zeba, very stony	35	  Very limited	i	  Very limited	i
	İ	Depth to	1.00	Depth to bedrock	1.00
		saturated zone		Depth to	1.00
		Depth to bedrock		'	!
		Slope	0.04	!	1.00
		Water erosion	0.01	Cutbanks cave	1.00
234A:	İ		i		i
Levasseur, very					
stony	55	Very limited	:	Very limited	1 00
	 	Depth to bedrock Depth to	1.00	Depth to bedrock Depth to	1.00  1.00
		saturated zone		saturated zone	1.00
		Droughty	1.00	Cutbanks cave	1.00
	į	Restricted	1.00	Large stones	0.85
		permeability			
Burt, very stony	   35	  Verv limited		  Very limited	
Lard, vory acomy	33	Depth to bedrock	:	_	1.00
	i	Depth to	1.00	Depth to	1.00
	i	saturated zone	i	saturated zone	i
		Droughty	1.00	Ponding	1.00
		i .		Cutbanks cave	1.00

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of	!		Drainage		
	map  unit					
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	
235B:	 	 		 		
Sauxhead, very stony	60	  Very limited	i	  Very limited	i	
		Depth to soft	1.00	_		
		bedrock		Depth to	1.00	
	 	Depth to saturated zone	1.00	saturated zone		
		Droughty	1.00	 	i	
	į	Water erosion	0.01		į	
Burt, very stony	   30	  Very limited		  Very limited		
		Depth to bedrock	1.00	Depth to bedrock	1.00	
		Depth to	1.00	-	1.00	
		saturated zone		saturated zone	1 00	
	 	Droughty 	1.00	Cutbanks cave	1.00  1.00	
236B:	 	 		 		
Waiska, extremely						
bouldery	85	Very limited		Very limited		
	 	Droughty Slope	1.00	Cutbanks cave Deep to water	1.00	
		Blobe		Deep to water		
236D:		1				
Waiska, extremely bouldery	   85	  Very limited		  Very limited		
Douracry	03	Droughty	1.00	Cutbanks cave	1.00	
	İ	Slope	1.00	Deep to water	1.00	
	 	 		Slope	0.16	
237B:					į	
Chatham	65	Somewhat limited	0.16	Very limited   Cutbanks cave	1.00	
		Slope 		Deep to water	1.00	
Davies		  Very limited		  Very limited		
Davies	20	Depth to	1.00	_	1.00	
		saturated zone		saturated zone		
		Cobble content	0.94	Cutbanks cave	1.00	
		Droughty	0.55	Frost action	1.00	
	 			Ponding Large stones	1.00	
239B:		 		 		
Longrie	50	  Very limited		  Very limited		
		Depth to bedrock	:			
		Water erosion	0.17	Deep to water	1.00	
	 	Slope 	0.16	Cutbanks cave	1.00	
Shingleton	40	Very limited		Very limited	į.	
		Depth to bedrock	:	_	1	
	 	Droughty Restricted	1.00	Deep to water Cutbanks cave	1.00	
		permeability	İ	Jacobanne Cave		
		Slope	0.16			

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	Grassed waterways		Drainage   	
1 	unit   	   Rating class and   limiting features	1	   Rating class and   limiting features	Value
0.4.0=	[		[		ļ
240F: Trout Bay	   30	  Very limited		  Very limited	
		Depth to soft	1.00	-	1.00
	į	bedrock	İ	Depth to	1.00
		Depth to	1.00	l .	
		saturated zone		Frost action	1.00
		Slope	1.00	Slope	1.00
Gongeau	25	  Very limited		  Very limited	
<b>3</b>		Depth to soft	1.00	Depth to bedrock	1.00
		bedrock		Depth to	1.00
		Depth to	1.00	saturated zone	
		saturated zone		Frost action	1.00
	 	Slope Droughty	0.62	Cutbanks cave	1.00
		Dioughty			ŀ
Shingleton	20	  Very limited	i	  Very limited	i
	ĺ	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock		-	1.00
 		Droughty	1.00		1.00
	 	Restricted permeability	1.00	Cutbanks cave	1.00
					İ
Rock outcrop	15 	Not rated 		Not rated 	
241:					ļ
Cathro	55	Very limited	:	Very limited	11 00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Frost action	1.00
	į		i	Cutbanks cave	1.00
	ĺ		İ	Ponding	1.00
				Organic matter	1.00
				content	
Gay	   35	  Very limited		  Very limited	
2		Depth to	1.00	_	1.00
	į	saturated zone	į	saturated zone	į
		Water erosion	0.17	Frost action	1.00
				Cutbanks cave	1.00
		 		Ponding	1.00
242B:		 		 	
Kalkaska, severely	į		i		į
burned	95	Somewhat limited		Very limited	
		Droughty	0.87	'	1.00
	 	Slope	0.16	Deep to water	1.00
242D:		 		[ 	
Kalkaska, severely	i		i		İ
_	95	Very limited		Very limited	
burned					
burned		Slope	1.00	l .	1.00
burned		Slope   Droughty	1.00	l .	1.00  1.00  0.37

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	Grassed   waterways 		Drainage   	
	unit	Rating class and	Value	Rating class and	Value
	<u> </u>	limiting features	<u> </u>	limiting features	1
242F: Kalkaska, severely burned	     90   	    Very limited   Slope   Droughty	      1.00  0.87	  Very limited   Slope   Cutbanks cave   Deep to water	      1.00  1.00
243:	 	 		 	
Markey	   95           	   Very limited   Depth to   saturated zone   	  1.00           	Very limited    Depth to   saturated zone     Cutbanks cave   Frost action     Ponding     Organic matter     content	  1.00    1.00  1.00  1.00
245B:	į	ĺ	į	İ	İ
Trout Bay	40       	Very limited   Depth to soft   bedrock   Depth to   saturated zone	  1.00    1.00 	Very limited   Depth to bedrock   Depth to   saturated zone   Frost action   Ponding	  1.00  1.00    1.00
	İ				
Lupton	30           	Very limited	  1.00         	Very limited Depth to saturated zone Organic matter content Frost action Ponding Cutbanks cave	  1.00    1.00    1.00  1.00
Gongeau	   20         		  1.00    1.00    0.54  0.04	  Very limited   Depth to bedrock   Depth to   saturated zone   Frost action   Ponding	  1.00  1.00    1.00  1.00
246B:		 		 	
Garlic	90     	Somewhat limited   Droughty   Slope	0.74	   Very limited   Cutbanks cave   Deep to water	  1.00  1.00
246D: Garlic	   90     	  Very limited   Slope   Droughty	  1.00  0.74	   Very limited   Cutbanks cave   Deep to water   Slope	  1.00  1.00  0.37
246E:		 		 	
Garlic	90     	Very limited   Slope   Droughty	  1.00  0.74 	Very limited   Slope   Cutbanks cave   Deep to water	  1.00  1.00  1.00

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of	Grassed   waterways		Drainage   		
	map  unit	 		 		
		Rating class and limiting features	Value	Rating class and   limiting features	Value	
248B:	 					
Escanaba	50   	Somewhat limited   Slope 	  0.16 	Very limited   Cutbanks cave   Deep to water	  1.00  1.00	
Greylock	   40 	  Somewhat limited   Water erosion	    0.17	  Very limited   Deep to water	    1.00	
	 	Slope 	0.16 	Cutbanks cave	1.00	
248D: Escanaba	   50		:	  Very limited		
	   	Slope   	1.00   	Cutbanks cave Deep to water Slope	1.00  1.00  0.37	
Greylock	   40 	  Very limited   Slope   Water erosion	  1.00  0.17	  Very limited   Deep to water   Cutbanks cave	  1.00  1.00	
	 	  -		Slope	0.37	
248E: Escanaba	   50 	  Very limited   Slope	    1.00	  Very limited   Slope	1.00	
	 	 		Cutbanks cave	1.00	
Greylock	   40 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	
	   	Water erosion   	0.17	Deep to water Cutbanks cave	1.00	
249B: Sauxhead	     55	    Very limited	 	    Very limited	İ	
	   	Depth to soft bedrock	1.00	Depth to bedrock Depth to	1.00	
	   	Depth to   saturated zone   Droughty	1.00    1.00	saturated zone	 	
	 	Water erosion	0.01		İ I	
Skandia	35 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to bedrock   Depth to	  1.00  1.00	
		Depth to bedrock	1.00	saturated zone Organic matter	1.00	
	   	   	   	content Frost action Ponding	  1.00  1.00	
250B:			 	-    -	į Į	
Chocolay, extremely stony	   55	  Very limited		  Very limited		
	   	Depth to   saturated zone   Depth to bedrock	1.00    1.00	Depth to bedrock Depth to saturated zone	1.00	
		Droughty	1.00	Cutbanks cave	1.00	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of	waterways		Drainage   	
	unit	!		i İ	
		Rating class and limiting features	Value	Rating class and limiting features	Value
0.505					
250B: Jacobsville,	l I	  -		  -	1
extremely stony	   30	  Very limited		  Very limited	1
excremely scony	30	Depth to	1.00		1 00
	 	saturated zone	1	Depth to	1.00
		Depth to bedrock	1.00	saturated zone	
	İ	Water erosion	0.01	Frost action	1.00
	İ	İ	į	Cutbanks cave	1.00
				Ponding	1.00
251B:	 			 	
Greylock	90	Somewhat limited	į	Very limited	İ
		Water erosion	0.17	Deep to water	1.00
		Slope	0.16	Cutbanks cave	1.00
251D:	 	 		 	
Greylock	85	Very limited		Very limited	
		Slope	1.00	Deep to water	1.00
		Water erosion	0.17	Cutbanks cave	1.00
	 	 		Slope 	0.37
252A:					į
Finch	50	Very limited		Very limited	
	i	Depth to	1.00	: -	1.00
	 	saturated zone	1 00	cemented pan	1.00
	l I	Droughty	1.00	Depth to saturated zone	1
				Cutbanks cave	1.00
Kinross	   40	  Very limited		  Very limited	
RIMIODD	-0	Depth to	1.00	: -	1.00
		saturated zone		saturated zone	
	İ	Droughty	0.04	Cutbanks cave	1.00
				Ponding	1.00
254C:		 		 	
Kalkaska, dissected	55	Somewhat limited		Very limited	
		Slope	0.95	Cutbanks cave	1.00
		Droughty 	0.87	Deep to water	1.00
Blue Lake, dissected	35	:		  Very limited	į
	i	Slope	0.95		1.00
		Droughty 	0.23	Deep to water	1.00
254E:			į		į
Kalkaska, dissected	55		:	Very limited	
	 	Slope Droughty	1.00	Cutbanks cave Deep to water	1.00
		Droughty	0.87 	Slope	1.00
Pluo Toko di sassi d	25	 		 	
Blue Lake, dissected	35 	Very limited   Slope	1.00	Very limited   Cutbanks cave	1.00
	! 	Droughty	0.23	Deep to water	1.00
				Slope	1.00
254F:	 	 		 	
Kalkaska, dissected	55	  Very limited		  Very limited	İ
		Slope	1.00	Slope	1.00
		Droughty	0.87	Cutbanks cave	1.00
		I		Deep to water	1.00

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	Grassed   waterways			
	unit   	Rating class and limiting features	Value	   Rating class and   limiting features	Value
254F:	 	[ ]	 	[ [	
Blue Lake, dissected	35	Very limited	į	Very limited	j
		Slope	1.00	Slope	1.00
	 	Droughty 	0.23	Cutbanks cave Deep to water	1.00
0555			į	_	į
255D: Wallace	05	  Very limited	 	  Very limited	
Wallace	33	Droughty	1.00	Depth to thin	1.00
	 	Slope	1.00	cemented pan	1
	! 			Cutbanks cave	1.00
			İ	Deep to water	1.00
			į	Dense layer	0.50
256B:	 		 		
Whitewash	95	Somewhat limited	İ	Very limited	ĺ
		Water erosion	0.17	Cutbanks cave	1.00
	 	Droughty	0.01	Deep to water	1.00
266A:	 				
Spot	50	Very limited		Very limited	
		Depth to	1.00	Depth to thin	1.00
		saturated zone		cemented pan	
		Droughty	1.00	Depth to	1.00
				saturated zone	
	 		 	Cutbanks cave	1.00
Ri- ab	10	 		 	
Finch	4±0 	Very limited   Depth to	1.00	Very limited   Depth to thick	1.00
	 	saturated zone	1	cemented pan	1
	! 	Droughty	1.00	Depth to	1.00
		Slope	0.04	saturated zone	
		_	į	Cutbanks cave	1.00
267A:	 		 		
Finch	85	Very limited		Very limited	
		Depth to	1.00	Depth to thick	1.00
		saturated zone		cemented pan	
		Droughty	1.00	Depth to	1.00
	 	Slope 	0.04 	saturated zone Cutbanks cave	1.00
	į		į		į
268C:					
Munising, calcareous	 	 		 	
substratum, dissected	   40	  Vorm limited	l I	  Very limited	
dissected	*±0 	very limited   Depth to cemented			1.00
	! 	pan pan	1.00	cemented pan	
		Depth to	1.00	· -	1.00
	İ	saturated zone		saturated zone	
	İ	Slope	0.83	Cutbanks cave	1.00
	ı	Droughty	0.34	Dense layer	0.50
	l	Dioughty	0.54	Dembe rayer	10.50

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of	!		Drainage 	
	map  unit	 		 	
		· —————	Value	Rating class and limiting features	Value
268C:					
Frohling, calcareous substratum,	   	   	   	 	   
dissected	30	Very limited		Very limited	
	 	Depth to cemented pan	į	cemented pan	1.00
	 	Slope Water erosion	0.83	Cutbanks cave Deep to water	1.00
	   	Water erosion		Dense layer	0.50
Cookson, dissected	20	  Very limited	 	  Very limited	
	İ	Water erosion	1.00	Depth to bedrock	1.00
		Depth to bedrock	'	Deep to water	1.00
	 	Slope	0.83	Cutbanks cave	1.00
269E: Frohling, calcareous	   		   		   
substratum, dissected	   50	  Very limited	 	  Very limited	
dissected	30   	Depth to cemented pan	  1.00 	<u>-</u>	1.00
	İ	Slope	1.00	Cutbanks cave	1.00
		Water erosion	0.01	Deep to water	1.00
				Slope	1.00
	 	 	 	Dense layer	0.50
Garlic, dissected	20	  Very limited		  Very limited	
		Slope	1.00	Cutbanks cave	1.00
	 	Droughty 	0.74 	Deep to water	1.00
Cookson, dissected	   20	  Very limited	 	  Very limited	
coonbon, arbbected	20	Water erosion	1.00	Depth to bedrock	1.00
	İ	Slope	1.00	Deep to water	1.00
		Depth to bedrock	1.00	Slope	1.00
			 	Cutbanks cave	1.00
272C: Munising, calcareous	   	   	   	   	   
substratum,					
dissected	40 	Very limited   Depth to cemented	  1.00	Very limited   Depth to thick	1.00
		pan		cemented pan	
	İ	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Slope	0.83	Cutbanks cave	1.00
	 	Droughty Water erosion	0.34	Dense layer	0.50
Yalmer, calcareous			 		
substratum, dissected	   30	  Very limited	 	  Very limited	1
arpsected	50	Depth to	1.00	Depth to thick	1.00
	<u> </u>	saturated zone		cemented pan	
		Depth to cemented	1.00	Depth to	1.00
		pan		saturated zone	
		Droughty	0.97	Cutbanks cave	1.00
	!	Slope	0.95	Dense layer	0.50

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	waterways		Drainage   		
	unit   	!	Value	   Rating class and   limiting features	Value	
272C: Frohling, calcareous substratum,	     	 	     	 		
dissected	20   	  Very limited   Depth to cemented   pan	  1.00 	  Very limited   Depth to thick   cemented pan	1.00	
	   	Slope   Water erosion 	0.95	Cutbanks cave Deep to water Dense layer	1.00  1.00  0.50	
275B: Munising, calcareous	   	   	   	   	   	
substratum	50   	Very limited   Depth to cemented   pan	į	Very limited   Depth to thick   cemented pan	  1.00 	
	   	Depth to   saturated zone   Slope	1.00    0.16	Depth to   saturated zone   Cutbanks cave	1.00    1.00	
	   	Droughty   Water erosion 	0.13  0.01 	Dense layer   	0.50   	
Cookson	40     	Very limited   Water erosion   Depth to bedrock   Slope	  1.00  1.00  0.16	Very limited   Depth to bedrock   Deep to water   Cutbanks cave	  1.00  1.00  1.00	
281E: Mongo, dissected	   95       	  Very limited   Water erosion   Restricted   permeability   Slope	    1.00  1.00    1.00	   Very limited   Frost action   Deep to water   Slope   Cutbanks cave   Too clayey	  1.00  1.00  1.00  1.00	
282B: Furlong	     50   	  Very limited   Depth to bedrock   Droughty   Slope	    1.00  1.00  0.36	  Very limited   Depth to bedrock   Cutbanks cave   Deep to water	    1.00  1.00  1.00	
Shingleton	   40       	Very limited Depth to bedrock Droughty Restricted permeability Slope	  1.00  1.00  1.00    0.16	  Very limited   Depth to bedrock   Deep to water   Cutbanks cave	  1.00  1.00  1.00	
282D:		 		 		
Furlong	50       	Very limited   Depth to bedrock   Droughty   Slope	  1.00  1.00  1.00	Very limited    Depth to bedrock   Cutbanks cave   Deep to water   Slope	  1.00  1.00  1.00  0.37	
Shingleton	   40         	  Very limited   Depth to bedrock   Droughty   Restricted   permeability   Slope	  1.00  1.00  1.00    1.00	  Very limited   Depth to bedrock   Deep to water   Cutbanks cave   Slope	  1.00  1.00  1.00  0.37	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.	Grassed waterways		Drainage	
	map				
	unit	!	Value	Rating class and	Value
	 	limiting features	value	limiting features	value
284B:	 		 		 
Steuben	40	Very limited	İ	Very limited	İ
		Depth to cemented	1.00	Depth to thick	1.00
		pan		cemented pan	
	 	Droughty Water erosion	0.57 0.17	Cutbanks cave Deep to water	1.00
	   	Slope	0.16	Dense layer	0.50
Blue Lake	     30	    Somewhat limited	   	    Very limited	
Bide Dake	30	Droughty	0.23	Cutbanks cave	1.00
	   	Slope	0.16	Deep to water	1.00
Kalkaska	20	  Somewhat limited		  Very limited	
		Droughty	0.87	Cutbanks cave	1.00
	 	Slope 	0.16 	Deep to water	1.00
284D: Steuben	   40	  Very limited	 	  Very limited	
	10	Depth to cemented	1.00	Depth to thick	1.00
	İ	pan	İ	cemented pan	i
	ĺ	Slope	1.00	Cutbanks cave	1.00
		Droughty	0.57	Deep to water	1.00
	 	Water erosion 	0.17 	Dense layer Slope	0.50
Blue Lake	   25	  Very limited	 	  Very limited	
		Slope	1.00	Cutbanks cave	1.00
	 	Droughty 	0.23 	Deep to water	1.00
Kalkaska	   25	  Very limited	 	  Very limited	
	ĺ	Slope	1.00	Cutbanks cave	1.00
	 	Droughty 	0.87 	Deep to water	1.00  0.37
284E:	 	 	 		
Steuben	40	Very limited		Very limited	
	 	Slope Depth to cemented	1.00	Depth to thick cemented pan	1.00
		pan		Slope	1.00
	 	Droughty   Water erosion	0.57  0.17	Cutbanks cave Deep to water	1.00  1.00
	   	Water erosion		Dense layer	0.50
Blue Lake	30	  Very limited		  Very limited	-
		Slope	1.00	Slope	1.00
	 	Droughty 	0.23	Cutbanks cave Deep to water	1.00
Kalkaska	   20	  Very limited	 	  Very limited	
		Slope	1.00	Slope	1.00
		Droughty	0.87	Cutbanks cave	1.00
	1	I	I	Deep to water	1.00

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	waterways		Drainage   	
	unit   	Rating class and limiting features	Value	Rating class and   limiting features	Value
285B: Halfaday	     50   	  Somewhat limited   Depth to   saturated zone   Droughty	    0.86    0.17	  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00
Kinross	     40     	Slope 	0.04     1.00   0.04	  Very limited   Depth to   saturated zone   Cutbanks cave   Ponding	    1.00    1.00
286B: Greylock	     50	    Somewhat limited   Water erosion   Slope	      0.17  0.16	  -  Very limited   Deep to water   Cutbanks cave	    1.00
Cookson	   40   	Very limited   Water erosion   Depth to bedrock   Slope		  Very limited   Depth to bedrock	
287B:		 		 	
McMaster	55         	Somewhat limited   Depth to   saturated zone   Droughty   Slope   Cobble content	  0.86    0.69  0.04  0.03	Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    1.00 
Davies	   35           	   Very limited   Depth to   saturated zone   Cobble content   Droughty	  1.00    0.94  0.55	Very limited   Depth to   saturated zone   Cutbanks cave   Frost action   Ponding   Large stones	  1.00    1.00  1.00  1.00  0.14
290A: Namur, very stony	   50   	  Very limited   Depth to bedrock   Droughty   Water erosion	1	. –	  1.00  1.00  1.00
Ruse, very stony	   40           		:	Depth to saturated zone	  1.00  1.00    1.00  1.00
292B: Mashek, sandy substratum	   90       	  Very limited   Depth to   saturated zone   Slope   Water erosion	    1.00    0.04  0.01	  Very limited   Depth to   saturated zone   Cutbanks cave   Dense layer	    1.00    1.00  0.50

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of	!		Drainage   	
	unit				
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
296D:	 	l I		 	
Islandlake	55	  Very limited		  Very limited	i
	į	Slope	1.00	Cutbanks cave	1.00
		Droughty	0.20	Deep to water	1.00
				Slope	0.16
McMillan	   35	  Very limited		  Very limited	
		Water erosion	1.00	Cutbanks cave	1.00
	į	Slope	1.00	Deep to water	1.00
		Droughty	0.20	Slope	0.16
296E:		 		l I	
Islandlake	   55	  Very limited		  Very limited	
		Slope	1.00	Slope	1.00
	į	Droughty	0.60	Cutbanks cave	1.00
				Deep to water	1.00
McMillan	   35	  Very limited		  Very limited	
		Slope	1.00	Slope	1.00
	į	Water erosion	1.00	Cutbanks cave	1.00
		Droughty	0.20	Deep to water	1.00
297B:		l			
Rubicon, severely		 		 	
burned	95	Somewhat limited	i	  Very limited	i
	į	Droughty	0.90	Cutbanks cave	1.00
		Slope	0.16	Deep to water	1.00
297D:		 		 	
Rubicon, severely		 		 	
burned	95	  Very limited	i	  Very limited	i
		Slope	1.00	Cutbanks cave	1.00
		Droughty	0.90	Deep to water	1.00
	 	İ		Slope	0.26
298B:		 		 	
Wurtsmith	55	Somewhat limited	į	Very limited	İ
		Droughty	0.90	Depth to	1.00
		Depth to	0.86	saturated zone	
		saturated zone Slope	0.16	Cutbanks cave	1.00
		Siope			
Deford	35	  Very limited	j	  Very limited	j
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
	 	 		Cutbanks cave	1.00
299F:			[		
Shelldrake	99	Very limited	:	Very limited	
		Slope	1.00	Cutbanks cave	1.00
	 	Droughty	0.98	Deep to water	1.00
	1	] 	1	1 21000	1

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	Grassed   waterways 		Drainage   		
	unit			İ		
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	
300F:	 	 	 	 		
Shelldrake	61	  Very limited	İ	  Very limited	į	
		Slope	1.00	Cutbanks cave	1.00	
	 	Droughty 	0.98 	Deep to water	1.00	
Dune land	38	  Not rated	 	  Not rated		
301F:		 	 	l		
Cookson, dissected	   55	  Verv limited	 	  Very limited		
,		Slope	1.00	Depth to bedrock	1.00	
	İ	Water erosion	1.00	Slope	1.00	
	i	Depth to bedrock	1.00	Deep to water	1.00	
	į	j	į	Cutbanks cave	1.00	
Nykanen, dissected	35	Very limited		Very limited		
		Depth to soft	1.00	Depth to bedrock		
		bedrock		Slope	1.00	
		Slope	1.00	Depth to	1.00	
		Depth to	1.00	saturated zone		
	 	saturated zone Water erosion	  1.00	Cutbanks cave	1.00	
		[				
302B:		 		 		
Dillingham	45	Somewhat limited		Very limited	1 00	
		Depth to cemented	0.99	Cutbanks cave	1.00	
		pan	  0.69	Deep to water	1.00	
		Droughty Slope	0.16	Depth to thin cemented pan	10.33	
		blobe		Dense layer	0.50	
Kalkaska	40	  Somewhat limited	 	  Very limited		
Raikaska	1 -10	Droughty	0.87	Cutbanks cave	1.00	
		Slope	0.16	Deep to water	1.00	
302D:	 	l I	 	 		
Dillingham	52	  Very limited		  Very limited		
	İ	Slope	1.00	Cutbanks cave	1.00	
		Depth to cemented	0.99	Deep to water	1.00	
		pan		Depth to thin	0.99	
		Droughty	0.98	cemented pan		
		 		Dense layer	0.50	
		 	 	Slope 	0.37	
Kalkaska	45	  Very limited	İ	  Very limited	i	
		Slope	1.00	Cutbanks cave	1.00	
		Droughty	0.87	Deep to water	1.00	
			 	Slope	0.37	
302E:						
Dillingham	50	Very limited		Very limited		
		Slope	1.00	Slope	1.00	
		Depth to cemented	0.99	Cutbanks cave	1.00	
		pan		Deep to water	1.00	
		1	0.00	Depth to thin	0.99	
		Droughty	0.98	Depth to thin	10.33	
	 	Droughty 	0.98	cemented pan		

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of	Grassed waterways		   Drainage 		
	map  unit					
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	
302E:	 	 	 			
Kalkaska	40	  Very limited	į	  Very limited	j	
		Slope	1.00	Slope	1.00	
		Droughty	0.87	Cutbanks cave Deep to water	1.00	
302F: Dillingham	   50	  Very limited	 	  Very limited		
<b></b>		Slope	1.00	Slope	1.00	
	i	Depth to cemented	0.99	Cutbanks cave	1.00	
	İ	pan	į	Deep to water	1.00	
	İ	Droughty	0.98	Depth to thin	0.99	
	İ		ĺ	cemented pan	İ	
				Dense layer	0.50	
Kalkaska	40	  Very limited	 	  Very limited		
		Slope	1.00	Slope	1.00	
		Droughty	0.87	Cutbanks cave	1.00	
	 	 	 	Deep to water	1.00	
303B:	į		į			
Kiva    	55	Somewhat limited		Very limited		
		Droughty	0.32	Cutbanks cave	1.00	
	 	Water erosion   Slope	0.17  0.16	Deep to water	1.00	
Trenary		  Somewhat limited	 	  Very limited		
1101141		Water erosion	0.56	Deep to water	1.00	
		Slope	0.16	Cutbanks cave	1.00	
				Dense layer	0.50	
303D:	 	 	 			
Kiva	55	Very limited	ĺ	Very limited	Ì	
		Slope	1.00	Cutbanks cave	1.00	
		Droughty	0.32	Deep to water	1.00	
	 	Water erosion	0.17	Slope 	0.16	
Trenary	30	  Very limited		  Very limited	İ	
		Slope	1.00	Deep to water	1.00	
		Water erosion	0.56	Cutbanks cave	1.00	
	 	 	 	Dense layer   Slope	0.50	
2025	į		İ	-   	į	
303E: Kiva	55	  Very limited	 	  Very limited		
		Slope	1.00	Slope	1.00	
		Droughty	0.32	Cutbanks cave	1.00	
		Water erosion	0.17 	Deep to water	1.00	
Trenary	30	  Very limited	İ	  Very limited	i	
		Slope	1.00	Slope	1.00	
		Water erosion	0.56	Deep to water	1.00	
				Cutbanks cave	1.00	
	1	I .	1	Dense layer	0.50	

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct. of map	waterways		Drainage		
	unit   		Value	   Rating class and   limiting features	Value	
305B: Wurtsmith	     55     	  Somewhat limited   Droughty   Depth to   saturated zone	    0.90  0.86 	  Very limited   Depth to   saturated zone   Cutbanks cave	      1.00    1.00	
Meehan	     40     	Slope    Very limited   Depth to   saturated zone   Droughty	İ	  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00	
306C: Deerton, dissected	   35   	  Very limited   Depth to bedrock   Droughty   Slope		  Very limited   Depth to bedrock   Cutbanks cave   Deep to water	  1.00  1.00  1.00	
Tokiahok, dissected	   30         	  Very limited   Slope   Depth to cemented   pan   Droughty	1.00	Very limited   Depth to thick   cemented pan   Cutbanks cave   Deep to water   Dense layer   Slope	  1.00    1.00  1.00  0.50  0.16	
Jeske, dissected	   20       	Depth to saturated zone Depth to bedrock Droughty	  1.00    1.00  0.94  0.62	   Very limited   Depth to bedrock   Depth to   saturated zone   Cutbanks cave	  1.00  1.00    1.00	
307B: Rubicon, very deep water table	       95   	    Somewhat limited   Droughty   Slope	      0.93  0.16	  -  Very limited   Cutbanks cave   Deep to water	      1.00  1.00	
307D: Rubicon, very deep water table	     95     	  Very limited   Slope   Droughty	      1.00  0.93	  Very limited   Cutbanks cave   Deep to water   Slope	    1.00  1.00  0.37	
308B: Rubicon	     55   	  Somewhat limited   Droughty   Slope	    0.93  0.16	  Very limited   Cutbanks cave   Deep to water	    1.00  1.00	
Sultz	   40   	  Somewhat limited   Droughty   Slope	    0.86  0.16	  Very limited   Cutbanks cave   Deep to water	  1.00  1.00	
308D: Rubicon	   55     	  Very limited   Slope   Droughty 	    1.00  0.93 	  Very limited   Cutbanks cave   Deep to water   Slope	  1.00  1.00  0.37	

## Soil Survey of Alger County, Michigan

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.	!		Drainage	
	map				
	unit   	   Rating class and   limiting features	Value	   Rating class and   limiting features	Value
308D: Sultz	     40   	  Very limited   Slope   Droughty	      1.00  0.86	  Very limited   Cutbanks cave   Deep to water   Slope	    1.00  1.00  0.37
309B: Rubicon, deep water table	     95     	    Somewhat limited   Droughty   Slope 	    0.93  0.16 	  Very limited   Cutbanks cave   Deep to water   Depth to   saturated zone	    1.00  1.00  0.47
309D: Rubicon, deep water table	     95         	  Very limited   Slope   Droughty 	    1.00  0.93   	   Very limited   Cutbanks cave   Deep to water   Depth to   saturated zone   Slope	    1.00  1.00  0.47    0.37
310B: Kalkaska, burned	     90   	  Somewhat limited   Droughty   Slope	    0.87  0.16	  Very limited   Cutbanks cave   Deep to water	    1.00  1.00
310D: Kalkaska, burned	   95     	  Very limited   Slope   Droughty 	    1.00  0.87 	   Very limited   Cutbanks cave   Deep to water   Slope	  1.00  1.00  0.37
310E: Kalkaska, burned	   95     	  Very limited   Slope   Droughty	    1.00  0.87	  Very limited   Slope   Cutbanks cave   Deep to water	  1.00  1.00  1.00
311B: Kalkaska, very deep water table, burned	       95   	    Somewhat limited   Droughty   Slope	        0.87  0.16	  -  Very limited   Cutbanks cave   Deep to water	      1.00  1.00
311D: Kalkaska, very deep water table, burned	     95     	  Very limited   Slope   Droughty	    1.00  0.87	  Very limited   Cutbanks cave   Deep to water   Slope	    1.00  1.00  0.37
312B: Islandlake, burned	     95   	  Somewhat limited   Droughty   Slope	    0.60  0.16	  Very limited   Cutbanks cave   Deep to water	    1.00  1.00

## Soil Survey of Alger County, Michigan

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.	Grassed   waterways		Drainage 	
	map  unit	 		 	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value
312D:	 	 		 	
Islandlake, burned	95	  Very limited		  Very limited	i
		Slope	1.00	Cutbanks cave	1.00
	 	Droughty 	0.60 	Deep to water	1.00  0.16
313B:	 	 		 	
Kalkaska, deep water					i
table, burned	95	Somewhat limited		Very limited	
		Droughty	0.87	Cutbanks cave	1.00
	 	Slope 	0.04	Deep to water	1.00
314B:					İ
Blue Lake, very deep	:				
water table, burned	95	Somewhat limited	0.16	Very limited   Cutbanks cave	1.00
	 	Slope   Droughty	0.13	Deep to water	1.00
315B:					
Blue Lake, deep					
water table, burned	95 	Slope	0.16	Very limited   Cutbanks cave	1.00
	 	Droughty	0.13	Deep to water	1.00
				Depth to	0.47
	į			saturated zone	į
316B:	 	 		 	
Blue Lake, burned	95	Somewhat limited		  Very limited	İ
	ĺ	Slope	0.16	Cutbanks cave	1.00
		Droughty	0.13	Deep to water	1.00
316D:		 		 	
Blue Lake, burned	95	Very limited	j	Very limited	İ
		Slope	1.00	Cutbanks cave	1.00
	 	Droughty	0.13	Deep to water Slope	1.00
	 	 		Slope	0.37
317B:	į		į	İ	į
Kalkaska, very deep					
water table	95	Somewhat limited   Droughty	0.87	Very limited   Cutbanks cave	1.00
		Slope	0.04	Deep to water	1.00
	İ	i -	j	į -	j
317D:					
Kalkaska, very deep	   0E	  Town limited		  Town limited	
water table	35 	Slope	1.00	Very limited   Cutbanks cave	1.00
		Droughty	0.87	Deep to water	1.00
	į			Slope	0.37
318B:	 	 		 	
Islandlake, very		[ 		! 	
deep water table	95	Somewhat limited	j	  Very limited	j
		Droughty	0.60	Cutbanks cave	1.00
		Slope	0.16	Deep to water	1.00

## Soil Survey of Alger County, Michigan

Table 15b.--Water Management--Continued

Map symbol and soil name	Pct.	Grassed waterways		Drainage 	
	map	 		İ	
	unit   	Rating class and   limiting features	Value	   Rating class and   limiting features	Value
	İ	İ	İ		İ
318D: Islandlake, very		 	į Į		İ
deep water table	95			Very limited	
		Slope	1.00	Cutbanks cave	1.00
		Droughty 	0.20	Deep to water	0.16
319B:		 			ļ
Islandlake	95	Somewhat limited		Very limited	
		Droughty	0.60	Cutbanks cave	1.00
		Slope 	0.16 	Deep to water	1.00
319D: Islandlake	   95	  Very limited		  Very limited	
	İ	Slope	1.00	Cutbanks cave	1.00
	ĺ	Droughty	0.60	Deep to water	1.00
		 		Slope 	0.16
319E: Islandlake		    Very limited	<u> </u>	    Very limited	
isiandiake	35	Slope	1.00	Slope	1.00
		Droughty	0.60	Cutbanks cave	1.00
				Deep to water	1.00
319F:	 				
Islandlake	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Droughty 	0.20	Cutbanks cave Deep to water	1.00 1.00
320B:		 		 	
Kalkaska, deep water table		  Somewhat limited		  Very limited	
Cable	33	Droughty	0.87	Cutbanks cave	1.00
		Slope	0.04	Deep to water	1.00
				Depth to	0.47
	į į	  -	į	saturated zone	į
321B:					
Kalkaska	50	Somewhat limited   Droughty	0.87	Very limited   Cutbanks cave	1.00
		Slope	0.16	Deep to water	1.00
Deerton	   45	  Very limited		  Very limited	
		Depth to bedrock			1
		Droughty	0.83		1.00
		Slope 	0.16 	Deep to water	1.00
321D: Kalkaska	   50	  Very limited		  Very limited	 
		Slope	1.00		1.00
	j	Droughty	0.87	Deep to water	1.00
		 		Slope	0.37
Deerton	45	  Very limited		  Very limited	1 00
	 	Depth to bedrock			1.00
	 	Slope	1.00	Cutbanks cave Deep to water	1.00
	1	Droughty	0.03	Slope	0.37
		 	1	   probe	0.57

Table 16.--Engineering Index Properties (Absence of an entry indicates that data were not estimated)

Lockman	4	4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Classif	Classification	Frag	Fragments	Pe	Percentage p	O t
	d d	## P			>10	3-10		D > D	
			Unified	AASHTO	inches	inches	4	10	
	п				Pot	Pct			
10: Beaches	0 - 8 0	Sand	;	:	:	:	1	:	
11C: Deer Park	0-2	Highly	PT	A-8	0	0	100	100	1
		decomposed   plant material							
	2-3	Sand	SP-SM, SP	A-3	0	0	100	100	50
	3-10	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	100	100	50
	10-21	Sand, fine sand	SP-SM, SP	A-3, A-2-4	0 0	0 0	100	100	50
	H H D	1	1		, 	o	) )	) 	) 
11E: Deer Park	0-2	Highly	PT	A-8	0	0	100	100	1
		decomposed			_				
		plant material							
	2-3		SP-SM, SP		0	0	100	100	20
	3-10	fine	SP, SP-		0	0	100	100	20
	10-21	fine	SP-SM,		0	0	100	100	50
	21-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	o 	0	100	100	50
11F: Deer Park	0-2	Highly	Td	- <del>-</del> - 8	0	0	100	100	
		decomposed			_	_		_	
		plant material				_			
	2-3		SP-SM, SP		0	0	100	100	20
	3-10	fine	SP, SP.		0	0	100	100	20
	10-21	fine	SP-SM,		0	0	100	100	20
	21-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	100	100	20
12B:	c		E	0			0	, ,	
	1	deromposed –	14	0 4	> 		o H	) -	1
_		plant material							
	2-5	Sand	SM, SP, SP-SM	SP-SM A-2-4, A-3	0		95-100	95-100 85-100	40
	5-30	Sand	SM, SP, SP-SM	SP-SM A-2-4, A-3	0	0	95-100	85-100	40
	30-38	Sand	SM, SP, SP-SM	SP-SM A-1, A-2-4,	0		95-100	85-100	40
			į				1		
	38-80	Sand	SM, SP, SP-SM	SP-SM A-1, A-2-4,	o 	0	95-100	95-100 85-100	40

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classification	cation	Fragn	Fragments	Per	Percentage p sieve numb	du a
			7 1 1 1 1 1 1		>10	3-10	-	0	
			Unitied	AASHTO	ınches	inches inches	41	PFO	
	H				Pct	Pct			
12D:					_		_	_	
Rubicon	0-2	Slightly		A-8	o 	0	100	100	1
		plant material							
	2-5	Sand	SM, SP, SP-SM	SP-SM A-2-4, A-3	0	0	95-100	85-100	40
	5-30	Sand		SP-SM A-2-4, A-3	0	0	95-100	85-100	40
	30-38	Sand	SM, SP, SP-SM A-1,	A-1, A-2-4,	0	0	95-100	85-100   40	40
	38-80	Sand	SM, SP, SP-SM	SP-SM A-1, A-2-4,	0	0	95-100	95-100 85-100 40	40
				A-3					
12E:									
Rubicon	0-2	Slightly	PT	A-8	0	0	100	100	1
		decomposed							
	7 - 5		SW SP SP-SW	SD-SM   A-2-4   A-3	c	c	95-100	85-100	4 0
	7	Sand	2 0	SD-SM A-2-4, A-3			95-100	85-100	4 0
	30-38	Sand	Q.				95-100		40
			1	:	·	•	9		1
	38-80	Sand	SM, SP, SP-SM A-1,	A-1, A-2-4,	0	0	95-100	95-100 85-100 40	40
				A-3					
13B:									
Kalkaska	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
_	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100 40	40
_	8-9	Sand	SM, SP-SM		0	0-3		85-100 40	40
_	8-16	Sand	SP-SM, SM		0	0-3	95-100	85-100	40
	16-26	Sand	SP-SM, SM	_	0	0-3	95-100	85-100	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	o 	0-3	95-100	85-100	40
13D:									
Kalkaska	0-2	Sand	SM, SP-SM		0	0-3	95-100	85-100	40
_	2-6	Sand	SP-SM, SM		0	0-3	95-100		40
_	8-9	Sand	-SM		o _	0-3	95-100	85-100	40
_	8-16	Sand	SM		0	0-3	95-100	85-100 40	40
	16-26	Sand	SM		0	0-3		85-100	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
133									
Kalkaska	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100 40	40
_	8-9	Sand	SM, SP-SM		0	0-3	95-100	95-100   85-100   40	40
_	8-16	Sand	SM		0	0-3	95-100	85-100 40	40
	16-26	Sand	SM		0	0-3	95-100	85-100	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100 40	40
_			_		_			_	

Table 16.--Engineering Index Properties--Continued

Man atmbol		TISDA + extire	Classification	ication	Fragn	Fragments	Per	Percentage p	G H
	1 24 1				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	ä				Pct	Pct			
15A:		 	F- 0		c		0	0	
1	0	decomposed	1 1		· —	o 	9	9	
		plant material			_				
	2-6	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100	40
_	6-15	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100 40	40
	15-22	Sand	SM, SP-SM	A-2-4, A-3	0	0-2	90-100	90-100   85-100   40	40
	22-80	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	85-100	40
16A:									
Paquin	0-2	Moderately	PT	A-8	0	0	100	100	'
		decomposed			_	_	_		
	_	plant material	_	_	_	_	_		
	2-12	fine	SP-SM, SM	A-	。 。	0	95-100		
	12-14	Sand, fine sand	SM, SP-SM		。 。	0	95-100	90-100	
	14-17	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	90-100	50
	17-27	Sand, fine sand	sand SP-SM, SM		0	0	95-100	95-100   90-100	
	27-34	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100 90-100	50
_	34-80	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	50
17A:									
Au Gres	0-2	Moderately   decomposed	PT_	A-8	o 	0	100	100	'
		plant material							
	2-7	Sand	SM	A-3, A-2-4	0	0	95-100	90-100	45
_	7-17	Sand	SM	A-2-4, A-3	0	0	95-100	90-100	45
	17-28	Sand	SP-SM, SM		0	0	90-100	85-100	
	28-80	Sand	SP-SM, SM	A-2-4, A-3	0	0	001-06	85-100	40
18:									
Kinross	0-3	Muck	PT	A-8	0	0	100	100	1
	3-14	Sand	SP-SM, SM	A-2-4, A-3	0	0	100	90-100	50
	14-22	Sand	SP-SM	A-3	0	0	100	90-100	50
_	22-35	Sand	SP-SM	A-3	0	0	100	90-100	50
	35-80	Sand, fine sand	SP-SM	A-3	0	0	100	90-100	50
• 61									
Deford	0 - 4	Muck	PT	A-8	0	0	100	100	1
	4-80	Fine sand, sand SM,	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40
_		_	_	_	_				

Table 16. -- Engineering Index Properties -- Continued

			Classi	Classification	Frag	Fragments	Per	Percentage p	Qi o
Map symbol	Depth	USDA texture			_		OĮ.	sieve numb	dmr
and soil name	_	. —		_	>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	uI				Pct	Pct			
21A:									
Ingalls	0 - 4	Highly	PT	A-8	0	0	100	100	_
	_	decomposed			_	_	_	_	
	_	plant material			_	_	_		
	4-5	Sand	SP-SM, SP	A-3	0	0	90-100	90-100 85-100	45
	5-14	Fine sand,	SP, SP-SM	A-3, A-2-4	0	0	90-100	90-100  85-100  40	40
	_	loamy sand,	_	_	_	_			
	_	sand			_	_			
	14-16	Loamy sand,	SP, SP-SM	A-3, A-2-4	0	0	90-100	90-100   85-100   40	40
	_	fine sand,	_	_	_	_			
	_	sand			_	_	_		
	16-35	Fine sand,	SP, SM, SP-S	SP, SM, SP-SM A-3, A-2-4	0	0	90-100	90-100  85-100  40	40
	_	sand, loamy			_	_	_		
	_	sand			_	_	_		
	35-80	Stratified silt ML,	Mr, SM	A-4	0	0	100	100	09
	_	loam,			_	_	_		
	_	stratified			_	_			
	_	loamy fine			_	_	_		
	_	sand,			_	_	_		
	_	stratified			_	_	_		
	_	loamy very			_	_	_		
	_	fine sand,			_	_	_		
	_	stratified		_	_	_			
	_	silt			_	_	_		
	_				_				_

Table 16. -- Engineering Index Properties -- Continued

Man grampol		IISDA textiire	Classif	Classification	Fragi	Fragments	Per	Percentage p	e p
and soil name		400			>10	3-10	2		
			Unified	AASHTO	inches	inches inches	4	10	_
	u.				Pct	Pct			
24B:									
Munising	0-1	Highly	PT	A-8	0	0	100	100	_
	_	decomposed			_				_
	_	plant material	_		_	_			_
	1-2	Sandy loam,	SM	A-4, A-2-4	0-3	8-0	90-100	85-95	40
	_	loamy sand,	_	_	_				_
	_	fine sandy	_		_	_			
	_	loam	_		_	_			_
	2-10	Loamy sand,	SM	A-2-4	0-3	8-0	86-98	83-98	62
	_	fine sandy	_	_	_				_
	_	loam, sandy	_		_	_			_
	_	loam	_	_	_				
	10-14	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy		_					_
	_	loam	_		_	_			
	14-22	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy			_				
	_	loam			_		_		_
	22-49	Loamy fine	SC-SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	40
	_	sand, fine	_		_	_	_		_
	_	sandy loam,			_	_			
	_	loamy sand,	_		_	_			
	_	sandy loam	_		_	_			
	49-63	Fine sandy	SC, SC-SM	A-2-4, A-4,	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy	_	A-6	_				_
	_	clay loam,			_		_		_
	_	sandy loam			_	_			
	63-80	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy	_		_	_			_
		loam		_	_				
		. —	_		_				

Table 16. -- Engineering Index Properties -- Continued

Mer common		TIGOS + SCALL	Classif	Classification	Fragn	Fragments	Per	Percentage p	9 H
and soil name	Today —	בפירמו ב			>10	3-10	1	D > D	
			Unified	AASHTO	inches	inches inches	4	10	_
	H.				Pct	Pct			
25B:									
Munising	0-1	Highly	PT	A-8	0	0	100	100	_
	_	decomposed		_	_		_		
	_	plant material		_	_				
	1-2	Sandy loam,	SM	A-4, A-2-4	0-3	8-0	90-100	85-95	40
		loamy sand,			_				
	_	fine sandy		_	_				
	_	loam		_	_				_
	2-10	Loamy sand,	SM	A-2-4	0-3	8-0	86-98	83-98	62
	_	fine sandy		_	_				_
	_	loam, sandy		_	_				_
	_	loam		_	_				_
	10-14	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
		loam, sandy		. —	_				_
	_	loam		_	_				_
	14-22	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy		_	_	_			_
		loam		_	_		_		_
	22-49	Fine sandy	SC-SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	40
	_	loam, loamy		_	_		_		_
		sand, sandy		_	_	_			
	_	loam, loamy		_	_				_
	_	fine sand		_	_				_
	49-63	Fine sandy	SC, SC-SM	A-2-4, A-4,	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy		A-6	_				_
	_	clay loam,		_	_	_	_		_
		sandy loam		_	_	_			
	63-80	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy		_	_				_
		loam			_				
	_								_

Table 16.--Engineering Index Properties--Continued

			Classification	ication	Fragm	Fragments	Per	Percentage p	Q,
Map symbol	Depth	USDA texture					Ø	sieve numb	dmi
and soil name	_	_			>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	п				Pct	Pct			
25B.									
Yalmer	0-1	Highly	PT	A-8	0	0	100	100	1
		posed							
		plant material							
	1-3	Sand, loamy	SM, SP-SM, SP	SP A-3, A-2-4	0	9-0	85-100	85-100   80-100	35
	_	sand, fine			_		_		
		sand			_		_	_	
	3-8	Sand, loamy	SM, SP-SM, SP	A-2-4, A-3	0	9-0	85-100	80-100	35
		sand, fine			_		_	_	
	_	sand			_	_			
	8-11	Sand, loamy	SM, SP-SM, SP	SP A-2-4, A-3	0	9-0	85-100	85-100   80-100	35
	_	sand, fine			_	_	_	_	
	_	sand			_	_			
	11-24	Sand, loamy	SM, SP-SM, SP	SP A-2-4, A-3	0	9-0	85-100	80-100	35
	_	sand, fine			_	_	_	_	
		sand			_		_	_	
	24-40	Loamy fine	SM	A-2-4, A-4	0	9-0	85-100	85-100   80-100	35
	_	sand, fine			_	_	_	_	
	_	sandy loam,			_	_			
	_	loamy sand,			_	_	_	_	
		sandy loam			_		_	_	
	40-66	Fine sandy	SC-SM	A-2-4, A-4	0	9-0	85-100	85-100   80-100	45
	_	loam, sandy			_	_	_	_	
	_	loam			_	_	_	_	
	08-99	Fine sandy	SC-SM	A-2-4, A-4	0	9-0	85-100 80-100	80-100	45
		loam, sandy			_				
		loam							
	_						-		

Table 16. -- Engineering Index Properties -- Continued

Lodenson	1		Classif	Classification	Fragi	Fragments	Per	Percentage p	θ ;
map symbol and soil name	Depth	USDA texture			>10	3-10	D2	sieve numb	OIIIT
			Unified	AASHTO	inches	inches inches	4	10	
	п				Pct	Pct			
25D:									
Munising	0-1	Highly	PT	A-8	0	0	100	100	_
		decomposed		_	_	_	_		
_		plant material		_	_				
_	1-2	Sandy loam,	SM	A-4, A-2-4	0-3	8-0	90-100 85-95	85-95	40
		loamy sand,			_				
_		fine sandy		_	_				
_		loam		_	_				
_	2-10	Loamy sand,	SM	A-2-4	0-3	8-0	86-98	83-98	62
		fine sandy							
_		loam, sandy			_				
_		loam		_	_		_		
_	10-14	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
		loam, sandy							
_		loam		_	_				
_	14-22	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
_		loam, sandy			_				
_		loam		_	_		_		
_	22-49	Fine sandy	SC-SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	40
		loam, loamy		_	_	_	_		
		sand, sandy			_		_		
_		loam, loamy		_	_				
_		fine sand		_	_				
_	49-63	Fine sandy	SC, SC-SM	A-2-4, A-4,	0-3	8-0	90-100 85-95	85-95	50
_		loam, sandy		A-6	_				
_		clay loam,			_				_
_		sandy loam		_	_				
_	63-80	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
		loam, sandy		_	_	_	_		_
_		loam			_				_
		_		_	_				_

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragments	nents	Per	Percentage p	d d
and soil name	4				>10	3-10			
			Unified	AASHTO	inches inches	inches	41	10	
	u L				Pct	Pct			
25D:									
Yalmer	0-1	Highly	PT	A-8	0	0	100	100	'
	_	decomposed			_		_		
	_	plant material			_		_	_	
	1-3	Sand, loamy	SM, SP-SM, SP	A-3, A-2-4	0	9-0	85-100	85-100   80-100	35
	_	sand, fine			_		_	_	
		sand			_		_	_	
	3-8	Sand, loamy	SM, SP-SM, SP	A-2-4, A-3	o _	9-0	85-100	80-100	35
	_	sand, fine			_		_	_	
	_	sand			_		_	_	
	8-11	Sand, loamy	SM, SP-SM, SP	SP A-2-4, A-3	0	9-0	85-100	85-100   80-100	35
	_	sand, fine			_		_	_	
		sand			_		_		
	11-24	Sand, loamy	SM, SP-SM, SP	SP A-2-4, A-3	0	9-0	85-100	80-100	35
	_	sand, fine			_		_	_	
	_	sand			_		_	_	
	24-40	Loamy fine	SM	A-2-4, A-4	0	9-0	85-100	85-100   80-100	35
	_	sand, fine			_		_	_	
		sandy loam,			_		_	_	
	_	loamy sand,			_		_	_	
	_	sandy loam			_		_	_	
	40-66	Fine sandy	SC-SM	A-2-4, A-4	0	9-0	85-100	80-100	45
		loam, sandy			_		_	_	
	_	loam			_		_	_	
	08-99	Fine sandy	SC-SM	A-2-4, A-4	0	9-0	85-100	85-100   80-100	45
		loam, sandy			_				
		loam			_				

Table 16. -- Engineering Index Properties -- Continued

			5	, to the state of	5	4	,	4	1
Map symbol	Depth	USDA texture	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		5 1 4		4	sieve numb	dmr dmr
and soil name	ı				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	In				Pct	Pct			
31D: Trenarv	0-2	Silt loam,	SM, MI	A-4. A-2-4	0	0-5	90-100	90-100 85-100	50
•		sandy loam,			·				
		fine sandy					_		
		loam, very							
		fine sandy							
		loam					_		
	2-6		ML, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	55
		loam, very							
		loam							
	6-12	Fine sandy	ML, SM	A-4	0 - 4	0-8	90-100 85-95	85-95	55
		loam, sandy							
			. —	. —			_		
		fine sandy		_	_		_		
		loam	_	_			_		
	12-17	Fine sandy	ML, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	55
		loam, very					_		
		fine sandy							
		loam							
	17-26	Sandy loam,	SM	A-4	0 - 4	8-0	90-100 85-95	85-95	40
		loamy sand						L	ı.
	76-37	Sandy clay	SC, SM	A-6, A-4	O - 4	8-0	68   00T-06	85-95	22
	37-80	Sandy loam,	SM	A-4	0 - 4	0-20	70-95	65-90	40
		gravelly fine							
		sandy loam,	_	_					
		cobbly fine		_	_		_		
		sandy loam							
33:									
Ensley	0-5	Muck	PT	A-8	0	0	100	100	_
	2-7	Mucky loam,	SM, ML	A-4, A-2-4	0 - 4	0-7	90-100	90-100 85-100	50
		mucky sandy							
		Loam							
	7-19	Fine sandy	ML, SM	A-4, A-2-4	0 - 4	0-7	90-100	90-100 85-100	20
	0	loam, loam						0	,
	T9-80	Gravelly rine	WS -	A-4	O - 4	GT-0	02-00 0	08-09	4 n
		sandy loam							
_		_	_	_	_		_		_

Table 16. -- Engineering Index Properties -- Continued

The column   The				Classification	ication	Fragi	Fragments	Per	Percentage p	Д.
Intercept   Inte		Depth	USDA texture			>10	3-10		sieve n	qwn
In				Unified	AASHTO	inches	inches	4	10	
1-3   Highly   P.T   A-8   0   0   100		H				Pct	Pct			
um 0-1 Highly	35B:									
1.3   Highly   PT   A.8   0   0   100   100	Munising, calcareous									
13   Pint material   A-2-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-	substratum	0-1	Highly	PT	A-8	0	0	100	100	_
1-3   Fine sandy loam   SM			decomposed							
1-3   Fine sandy loam   SM		,	it mate							
S-6   Fine sandy loam   SM		1-3	sandy	SM	A-4	0-3	8-0	90-100		52
S-23   Fine sandy loam  SM		3-6	sandy	SM	A-4	0-3	8-0	90-100	85-95	52
13-38   Loamy sand,   SM		6-23	andy	SM		0-3	0-8	90-100	85-95	52
10am   10am		23-38		SM		0-3	8-0	90-100		35
38-50   Fine sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     10am, 10amy   SC-SM   A-4, A-2-4   0-3   0-8   90-100   85-95     10am, 10amy   SC-SM   A-2-4, A-4   0-3   0-8   70-90   65-85     20avelly fine   SC-SM   A-2-4, A-4   0-3   0-8   70-90   65-85     andy loam   A-2-4, A-4   0-3   0-8   70-90   65-85     andy loam   A-2-4, A-3   0   0   100   100     1-2   Loamy sand   SM   A-2-4, A-3   0   0-3   81-97   76-97     16-28   Loamy sand, SM   SP-SM   A-2-4   0   0-3   79-96   74-96     16-28   Loamy sand, SM   A-2-4   0   0-2   68-97   62-97     16-28   Loamy sand, SM   A-2-4   0   0-2   68-97   62-97     16-28   Loamy sand, SM   A-2-4   0-2   0-6   88-99   85-99     16-28   Loamy sand, SM   A-2-4   0-2   0-6   88-99   85-99     16-28   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-28   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-28   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-28   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-28   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-28   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-38   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-38   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-38   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-38   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-38   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-38   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-38   Loamy sand, SM   A-2-4   0-2   0-6   66-82   59-79     16-38   Ravelly fine										
Section   Sect			Loam	;				-		- (
Solid Gravelly fine   SC-SM   A-4, A-2-4   0-3   0-8   70-90   65-85     Sandy loam   Sc-SM   A-2-4, A-4   0-3   0-8   70-90   65-85     Sandy loam   Sc-SM   A-2-4, A-4   0-3   0-8   70-90   65-85     Sandy loam   SM   A-2-4, A-3   0   0   100   100     Sandy loam   SM   A-2-4, A-3   0   0   100   100     Sandy loamy sand,   SM   A-2-4   0   0-3   81-97   76-97     Sandy loamy sand,   SM   A-2-4   0   0-3   81-97   76-97     Sandy loamy sand,   SM   A-2-4   0   0-3   81-97   76-97     Sandy loamy sand,   SM   A-2-4   0   0-2   68-97   62-97     Sandy loamy sand,   SM   A-2-4   0-2   0-6   88-99   85-99     Sandy loamy sand,   SM   A-4, A-2-4   0-2   0-6   88-99   85-99     Sandy loamy sand,   SM   A-4, A-2-4   0-2   0-6   66-82   59-79     Sandy loam   SM   A-2-4   0-2   0-6   66-82   59-79     Sandy loam   SM   A-2-4   0-2   0-6   66-82   59-79     Sandy loam   SM   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sandy loam   SM   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sandy loam   SM   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sandy loam   Sm   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sandy loam   SM   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sandy loam   SM   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-2-4, A-4   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-2-4, A-3   0-2   0-6   66-82   59-79     Sandy loam   Sm   A-2-4, A-2-4, A-3   0-2   0-6   66-82   59-79		38-50	Fine sandy	SM		1	8-0	001-06	85-95	35
Solidar   Soli										
Games   Game		50-63	Gravelly fine	MG - DG	A-4 A-2-4	0-3	α-0	70-90	ת מו	4 7
63-80   Gravelly fine   SC-SM   A-2-4, A-4   0-3   0-8   70-90   65-85			sandy loam		:	) - —	) )	) )		) - —
sandy loam   sandy loam   sandy loam   sandy loam   sandy loam   saturm		63-80	Gravelly fine	SC-SM		0-3	0-8	70-90	65-85	45
ecous carbon seed decomposed decomposed decomposed decomposed plant material plant material plant material sand, loamy loam sand			sandy loam			_				_
1-2   Loamy sand,   SM, SP-SM   A-2-4, A-3   D-2   D										_
1-2   Loamy sand,   PT   A-8   0   0   100   100   100   100	Valmer,									
1-2   Loamy sand   SM   A-2-4   O   O-3   81-97   76-97     2-5   Loamy sand,   SM   A-2-4   A-3   O   O-3   81-97   76-97     5-16   Sand, loamy   SM   A-2-4   O   O-3   79-96   74-96     16-28   Loamy sand,   SM   A-2-4   O   O-2   68-97   62-97     16-28   Loamy sand,   SM   A-2-4   O-2   O-6   88-99   85-99     16-28   Loamy sand,   SM   A-2-4   O-2   O-6   88-99   85-99     16-28   Loamy sand,   SM   A-4, A-2-4   O-2   O-6   88-99   85-99     16-28   Loamy sand,   SM   A-4, A-2-4   O-2   O-6   66-82   59-79     16-28   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-28   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-28   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-28   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-28   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-28   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-28   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-29   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM   A-2-4   O-2   O-6   66-82   59-79     16-30   Loamy sand,   SM	substratum	0-1	Highly	Ld	A-8	0	o	100	100	-
Plant material   A-2-4   0   0-3   81-97   76-97     Loamy sand,   SM, SP-SM   A-2-4, A-3   0   0-3   81-97   76-97     sand   Sand, loamy   SM   A-2-4   0   0-3   81-97   76-97     sand, loamy sand,   SM   A-2-4   0   0-2   68-97   62-97     loamy sand, gravelly   A-2-4   0-2   0-6   88-99   85-99     fine sandy   SM   A-4, A-2-4   0-2   0-6   88-99   85-99     fine sandy   SM   A-2-4   0-2   0-6   66-82   59-79     gravelly fine   SM   A-2-4   0-2   0-6   66-82   59-79     sandy loam   SM   A-2-4   A-4   0-2   0-6   66-82   59-79     sandy loam   SM   A-2-4   A-4   A-4   0-2   0-6   66-82   59-79     sandy loam   SM   A-2-4   A-4   A-4   0-2   0-6   66-82   59-79     sandy loam   SM   A-2-4   A-4   A-4   0-2   0-6   66-82   59-79     sandy loam   SM   A-2-4   A-4   A-4   0-2   0-6   66-82   59-79     sandy loam   SM   A-2-4   A-4   A-4   0-2   0-6   66-82   59-79     sandy loam   SM   A-2-4   A-4   A-4   0-2   0-6   66-82   59-79     SM   SM   A-2-4   A-4   A-4   0-2   0-6   66-82   59-79     SM   A-2-4   A-4   0-2   0-6   66-82   59-79     SM   A-2-4   A-4   0-2   0-6   66-82   59-79     SM   A-2-4   A-4   0-2   0-6   66-82   59-79     SM   A-2-4   A-4   0-2   0-6   66-82   59-79     SM   A-2-4   A-4   0-2   0-6   66-82   59-79     SM   A-2-4   A-4   0-2   0-6   66-82   59-79     SM   A-2-4   A-2-4   de la company de l		o 1	· 	· 	) )	9	l 			
Loamy sand, SM, SP-SM A-2-4, A-3 0 0-3 81-97 76-97 sand SM, SP-SM A-2-4, A-3 0 0-3 81-97 76-97 sand Sand, loamy sand, SM A-2-4 A-3 0 0-3 79-96 74-96 sand gravelly sand, company sand, SM A-2-4 0-2 68-99 85-99 fine sandy loam sand, SM A-2-4 0-2 0-6 88-99 85-99 gravelly fine sandy sand, SM A-2-4 0-2 0-6 88-99 85-99 gravelly fine sandy sand, SM A-2-4, A-4 0-2 0-6 66-82 59-79 sandy loam sand, SM A-2-4, A-4 0-2 0-6 66-82 59-79 sandy loam			nlant material							
Loamy sand, SM, SP-SM A-2-4, A-3 0 0-3 81-97 76-97 sand sand, loamy SM A-2-4, A-3 0 0-3 79-96 74-96 sand Loamy sand, SM A-2-4 0 0-2 68-97 62-97 sand, gravelly sand A-2-4 0-2 68-99 85-99 fine sandy loam Loamy sand, SM A-2-4 0-2 0-6 88-99 85-99 fine sandy loam sand, SM A-2-4 0-2 0-6 88-99 85-99 gravelly fine sandy sand, SM A-2-4, A-4 0-2 0-6 66-82 59-79 sandy loam sandy loam		1-2	Toamy gand	MS	A-2-4	c	0-3	81-97	76-97	57
Sand, loamy   SM   A-2-4   0   0-3   79-96   74-96   sand, loamy   SM   A-2-4   0   0-3   79-96   74-96   sand, loamy sand,   SM   A-2-4   0   0-2   68-97   62-97   sand, gravelly   A-2-4   0-2   0-6   88-99   85-99   fine sandy   SM   A-4, A-2-4   0-2   0-6   88-99   85-99   fine sandy   SM   A-2-4, A-4   0-2   0-6   66-82   59-79   gravelly fine sandy   SM   A-2-4, A-4   0-2   0-6   66-82   59-79   sandy loam   SM   A-2-4, A-4   0-2   0-6   66-82   59-79   sandy loam   SM   A-2-4, A-4   0-2   0-6   66-82   59-79   sandy loam   SM   A-2-4, A-4   0-2   0-6   66-82   59-79   sandy loam   SM   A-2-4, A-4   0-2   0-6   66-82   59-79   SM   SM   SM   A-2-4, A-4   0-2   0-6   66-82   SM   SM   SM   SM   SM   SM   SM   S		4 6						0 0	200	) 1
Sand, loamy         SM         A-2-4         0         0-3         79-96         74-96           sand, gravelly         A-2-4         0         0-2         68-97         62-97           sand, gravelly sand, loamy sand, loamy sand, loam         A-2-4         0-2         0-6         88-99         85-99           fine sandy         A-4, A-2-4         0-2         0-6         88-99         85-99           fine sandy         A-4, A-2-4         0-2         0-6         88-99         85-99           fine sandy         A-2-4, A-4         0-2         0-6         88-99         85-99           fine sandy         A-2-4, A-2-4         0-2         0-6         88-99         85-99           fine sandy         A-2-4, A-2-4         0-2         0-6         88-99         85-99           gravally fine         A-2-4, A-4         0-2         0-6         88-99         85-99		N 0				>	n D	1010	0 0 0	n n
Loamy sand,   SM   A-2-4   0   0-2   68-97   62-97   sand, gravelly		5-16		SM	A-2-4	0	0-3	96-64	74-96	54
Loamy sand,   SM   A-2-4   0   0-2   68-97   62-97   sand, gravelly   10-my sand,   SM   A-2-4   0-2   0-6   88-99   85-99   10-my sand,   SM   A-2-4   0-2   0-6   88-99   85-99   10-my sand,   SM   A-4, A-2-4   0-2   0-6   88-99   85-99   10-my sand,   SM   A-4, A-2-4   0-2   0-6   66-82   59-79   10-my sand,   SM   A-2-4, A-4   0-2   0-6   66-82   59-79   10-my sand,   SM   A-2-4, A-4   0-2   0-6   66-82   59-79   10-my sand,   SM   A-2-4, A-4   0-2   0-6   66-82   59-79   10-my sand,   SM   A-2-4, A-4   0-2   0-6   0-										_
sand, gravelly	_	16-28		SM	A-2-4	0	0-2	168-97	62-97	46
Loamy sand,   SM   A-2-4   O-2   O-6   88-99   85-99   Electronic   SM   A-2-4   O-2   O-6   SM-99	_				_	_		_		_
Gravelly sand   A-2-4   O-2   O-6   88-99   85-99   Ioamy sand,   SM   A-2-4   O-2   O-6   88-99   85-99   Ioamy sand,   SM   A-4, A-2-4   O-2   O-6   88-99   85-99   Ioamy sand,   SM   A-2-4, A-4   O-2   O-6   G6-82   S9-79   Ioamy sand,   SM   A-2-4, A-4   O-2   O-6   G6-82   S9-79   Ioamy sand,   SM   A-2-4, A-4   O-2   O-6   G6-82   S9-79   Ioamy sand,   SM   A-2-4, A-4   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6   G6-82   S9-79   Ioamy sand,   O-2   O-6			loamy sand,							
Loamy sand,   SM   A-2-4   0-2   0-6   88-99   85-99			911y					_		_
fine sandy		28-36		SM	A-2-4	0-2	9-0	88-99	85-99	65
Loamy sand,   SM   A-4, A-2-4   0-2   0-6   88-99   85-99	_					_		_		_
Loamy sand,   SM   A-4, A-2-4   0-2   0-6   88-99   85-99	_		loam			_		_		_
fine sandy loam Loamy sand, SM A-2-4, A-4 0-2 0-6 66-82 59-79 gravelly fine sandy loam		36-62		SM		0-2	9-0	88-99	85-99	75
Loam Loam SM A-2-4, A-4 0-2 0-6 66-82 59-79 gravelly fine sandy loam										
Loamy sand, SM A-Z-4, A-4 U-2 U-6 60-82 59-79 gravelly fine sandy loam	_	0	TOdill						0	L
graverly rine sandy loam	_	62-80	Loamy sand,	N.S.	A-2-4, A-4	0 - 2	9-0	78-99	67-69	52
			gandy loam							
			import Entire							

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classif	Classification	Fragn	Fragments	Per	Percentage p sieve numb	P P
and soil name	•				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	uI				Pct	Pct			
35B:									
Frohling,					_				
calcareous	0-0	יין ליי	E-	α 	_		00	0	
ממס כד מכתוו	1	decomposed	4		>	>	9	2	
		plant material		- —					
	2-5	Fine sandy	SM	A-4, A-2-4	0	8-0	85-100 80-100	80-100	50
		loam, loamy					_	_	
		fine sand					_	_	
	5-24	Fine sandy loam	SM	A-4	0	8-0	85-100 80-100	80-100	50
	24-73	Fine sandy	SM	A-2-4, A-4	0	8-0	85-100 80-100	80-100	50
		loam, loamy					_	_	
		fine sand					_	_	
_	73-80	Gravelly fine	SM	A-2-4, A-4	0-3	3-15	55-95	20-90	45
		sandy loam							
37B:									
Grand Sable	0-1	Moderately	PT	A-8	0	0	100	100	'
		decomposed							
_		plant material		_	_				
	1-4	Fine sand,	SM, ML	A-4	0	_ o	100	100	85
_		loamy very	_			_	_	_	
_		fine sand,	_			_	_	_	
_		very fine		_		_		_	
_		sandy loam				_		_	
_	4-30	Loamy very fine	SM	A-4	0	0	100	100	85
_		sand, loamy		_	_			_	
_		fine sand				_		_	
	30-32	Sand, loamy	SM	A-2-4	0	_ o	100	91-100	70
_		sand		_		_		_	
_	32-43	Sand	SP, SP-SM	A-3	0	8-0	90-100	90-100 85-100	
	43-55	Gravelly sand,	SP	A-3	0	8-0	100	001-09	35
		sand					_	_	
_	25-80	Gravelly sand,	SP	A-3	0	8-0	100	60-100	35
		sand			_				
_		_					_	_	

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classif	Classification	Fragments	nents	Per	Percentage p	P P
and soil name	1 14 1)				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	ä				Pct	Pct			
37E:									
Grand Sable	0-1	Moderately	PT	A-8	0	0	100	100	ı
		plant material							
	1-4	Fine sand,	SM, ML	A-4	0	0	100	100	85
_		loamy very		. —		_	_	_	
_		fine sand,		_		_	_	_	
_		very fine				_			
						_			
	4-30	very fine	SM	A-4	0	0	100	100	82
		sand, loamy							
	30-32	Sand, loamy	SM	A-2-4	0	0	100	91-100	7 0
-	32-43	Sand	SP, SP-SM	A-3	0	8-0	90-100	90-100 85-100	40
	43-55	Gravelly sand,	SP	A-3	0	8-0	100	60-100	35
		sand		. —		_	_		
	55-80	Gravelly sand,	SP	A-3	0	8-0	100	001-09	35
		sand							
38B:									
Rhody	0-19	Silt loam, silt ML	ML	A-4	0	0	100	100	90
_		, muck		_		_	_		
	19-36	Sand, gravelly	SP, SP-SM	A-3	0	0-15	70-100   65-95	65-95	20
	36-41	Westbered	;		c	c			
	9	bedrock			·	- — •			
	41-80	Unweathered	:	:	0	0	-	-	1
		bedrock							
Towes	0-19	Silt loam	ML	A-4	0	0	100	100	90
	19-22	Gravelly sand,	SP, SP-SM	A-3	:	0-15	00	9	20
_		sand				_	_	_	
	22-26	Sand, gravelly	SP, SP-SM	A-3	:	0-15	70-100	65-95	20
	0	sand							
	70-3/	weathered	:		:	:	:	:	1
	37-80	Unweathered	:	:	-	!	1	-	'
		bedrock							
_		_				_	_	_	

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Fragn	Fragments	Ъе	Percentage p	φ ω
Map symbol	Depth	USDA texture						sieve numb	dmn
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	п				Pct	Pct			
40B: Waiska, verv									
stony	0-1	Moderately	PT	A-8	0	0	100	100	
		decomposed		. —	_				_
		plant material	_	_	_		_		_
_	1-4	Sand, cobbly	SP, SM, GP	A-2-4, A-3,	0	0-30	30-93	16-92	12
_		loamy sand,	_	A-1	_		_	_	_
_		very gravelly			_		_		_
_		loamy sand			_		_	_	_
_	4-8	Very gravelly	SM, GP, SP,	A-1, A-2-4,	0	0-30	35-95	30-90	20
_		coarse sand,	SP-SM	A-3	_		_		_
_		very cobbly					_	_	_
_		loamy sand,			_		_		_
_		gravelly sand					_	_	_
_	8-18	Gravelly sand,	GP, SP, SP-SM A-1,	[A-1, A-3	0	0-30	35-80	30-75	10
_		very gravelly	_				_	_	_
_		coarse sand,			_		_		_
_		very gravelly	_		_		_	_	_
_		sand	_	_	_		_	_	_
	18-80	Very gravelly	SP-SM, SP, GP	A-1, A-3	0	0-30	15-80	10-75	- 5
		sand,	. —	. —	_				
		extremely							
-		gravelly							
		coarse sand,	_	_	_				_
_		gravelly sand	_	_	_		_	_	_
Davies	0 - 4	Muck, very	PT	A-8	0	0	100	100	7
		cobbly muck							
_	4-11	Very gravelly	GM, SM	A-2-4, A-1	8-0	15-44	40-70	35-65	25
_		sandy loam,					_	_	_
_		very cobbly			_		_	_	_
_		sandy loam	_		_		_		_
	11-80	Very gravelly	GP-GM, SP	A-3, A-1	8-0	15-44	40-70	35-65	15
		sand, very							
		CODDIY Saila							
			_	_	_		_		-

Table 16. -- Engineering Index Properties -- Continued

			<b>,</b>	)					
Map symbol	Depth	USDA texture	Classification	ication	Fragments	hents	Per	Percentage p sieve numb	du a
and soil name	ı				>10	3-10			
			Unified	AASHTO	inches inches	inches	4	10	
	댐				Pct	Pct			
46:									
very stony	0 - 5	Muck	PT	A-8	0	0	100	100	1
	5-9	Sandy loam,	SM	A-4, A-2-4	8-0	0-30	75-100 70-100		35
		fine sandy			_				
		loam, loamy			_	_		_	
		sand, cobbly		_	_	_	_	_	
		fine sandy			_	_		_	
		loam		_	_	_		_	
	9-23	Cobbly fine	SM	A-2-4, A-4	8-0	0-30	75-100 70-100	70-100	40
		sandy loam,		_	_				
		fine sandy		_	_	_	_	_	
		loam, sandy		_	_	_	_	_	
		loam		_	_	_	_	_	
	23-36		SM	A-2-4, A-4	8-0	8-0	95-100	5-100   90-100	50
-		loam, sandy							
		loam							
	36-80	Unweathered	:	-	:	:	:	:	1
		bedrock							
47C:									
Deerton	0-1	Highly	PT	A-8	0	0	100	100	1
		decomposed							
	1-9	Sand	SP-SM, SP	A-3	0	0-5	85-100 80-100	80-100	40
_	9-10	Loamy sand,	٠.,	SP-SM A-2-4, A-3	0-8	0-15	70-100	70-100 65-100	35
		channery sand,							
	,	sand							
	10-25	Channery sand,	SP-SM, SM, SP	SP A-3, A-2-4	8-0	0-15	70-100	70-100 65-100	35
		loamy sand,							
_	25-39	Weathered		-					'
_	)	bedrock							
	39-80	Unweathered	:	:	:	-	:	:	1
		bedrock							
Au Train	0-2	нідһ	PT	A-8	0	0	100	100	'
		decomposed			_			_	
	,								
-	2-9			_	0	0	95-100	90-100	45
	9-14	Sand, coarse	SP-SM, SP	A-3, A-1 	0	0	95-100	001-06	45
		Mana							
_	T4-52	wearnered   bedrock	: :	: :	!	!	:		1
_	32-80	Unweathered	;	-	:	;	;	-	'
		bedrock							
		_			_				

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Fragm	Fragments	Per	Percentage p	Ω
Map symbol	Depth	USDA texture					<u>α</u>	sieve numb	dmi
and soil name					>10	3-10			
			Unified	AASHTO	inches inches	inches	4	10	
	댐				Pct	Pct			
47E:									
Deerton	0-1	Highly	PT	A-8	0	0	100	100	
_		decomposed	_		_		_		
		plant material	_	_	_				
	1-9	Sand	SP-SM, SP	A-3	0	0-5	85-100	85-100   80-100	40
	9-10	Loamy sand,	SP, SM, SP-SN	SP-SM A-2-4, A-3	8-0	0-15	70-100	70-100   65-100   35	35
		channery sand,		_	_		_		
		sand	_		_		_	_	
_	10-25	Channery sand,	SP-SM, SM, SF	SP A-3, A-2-4	8-0	0-15	70-100 65-100	65-100	35
		loamy sand,	_		_		_		
		sand	_		_		_		
	25-39	Weathered	:	-	-	:	:	:	'
		bedrock			_		_	_	
	39-80	Unweathered	-	:	:	-	-	:	'
		bedrock						_	
Au Train	0-2	Highly	PT	A-8	0	0	100	100	'
		decomposed			_		_	_	
		plant material	_		_		_	_	
_	2-9	Coarse sand	SP, SP-SM	A-1	0	0	95-100	95-100   90-100	45
	9-14	Sand, coarse	SP-SM, SP	A-3, A-1	0	0	95-100	95-100 90-100	45
		sand		_	_		_		
	14-32	Weathered	-	-	-	-	-	:	1
		bedrock		_	_		_		
	32-80	Unweathered	-		:	-	:	:	
		bedrock							
48:									
Burt	0-1	Highly	PT	A-8	0	0	100	100	'
		decomposed	_	_	_		_	_	
		plant material	_						
	1-5		SP-SM	A-3	0	8-0	85-100 80-100	80-100	
	5-19	Loamy sand,	SM, SP-SM, SP	P A-2-4, A-3	0	0-15	70-100	70-100 65-100	35
		channery sand,							
	19-80	Bedrock	:	:	;	-	:	;	'

Table 16. -- Engineering Index Properties -- Continued

	:		Classification	ication	Fragments	nents	Per	Percentage	Δ.
Map symbol and soil name	Depth	USDA texture			>10	3-10	01	sieve numb	QWI
			Unified	AASHTO	inches inches	inches	4	10	
	п				Pct	Pct			
49B:	, -	÷ + 45	E	α	c		00	00	
	)	decomposed	ı ı	) <u> </u>	)	,	- — - ) !		
	2-7	plant material  Very fine sandy SM	GW MT.	4-8 4-2-8	_ c	4-	001-88	001-94	64
		loam, fine			 	r i		9	H D
		sandy loam,							
_		silt loam			_		_		
	7-11	Fine sandy	ML, SM	A-2-4, A-4	o 	0-3	89-100	89-100 78-100	65
		loam, very							
		loam, silt							
	11-16	Very fine sandy SM,	SM, ML	A-2-4, A-4	0	0-3	88-100	88-100 75-100	59
					_		_		
		sandy loam,			_		_		
		sandy loam,							
	16-21	Fine sandv	ML, SM	A-4. A-2-4	0	0-3	88-100	88-100 75-100	59
		loam, sandy							
					_				
_		fine sand			_				
_	21-31		ML, SM	A-2-4, A-4	0	0-3	80-100	80-100   78-100	58
		loam, fine							
		sandy loam,							
	31-36	Loam, sandy	SM, ML	A-2-4, A-4	0	0-3	80-100 78-100	78-100	55
_		loam, fine			_	_	_		
		sandy loam,			_		_		
	,	silt loam							
	36-80	Bedrock	-	<u> </u>	!	!	!	!	1
51:									
Nahma	0-11	Muck	PT	A-8	0	0	100	100	'
	11-14		ML, SC-SM	A-4	o 	0	95-100	85-100	50
		loam, fine							
_		sandy loam			-	c	г С	о С	L C
_	14-T/	rine sanay	ML, SC-SM	# - 4 - 4	>	>	00T-66	001-08 001-06	0
	17-19	Fine sandy	ML, SC-SM	A-4	0	0	95-100	95-100 85-100 50	50
_		loam, loam		<u> </u>					
	19-24	Fine sandy	SC-SM, ML	A-4	0	0-3	95-100	95-100   75-100	45
_		loam, loam,			_				
		gravelly fine							
	24-80	Bedrock	;	:	:	;	;	;	
					_			_	

Table 16. -- Engineering Index Properties -- Continued

May avmbol	Denth	ISDA texture	Classi	Classification	Fragn	Fragments	Per	Percentage p	G m
and soil name	1 24 3				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	ä				Pct	Pct			
51:								_	
Ruse	0-7		SM, ML	A-4, A-2-4	0	0-15	85-100	85-100 75-100	45
		loam, silt			_	_	_	_	
_		loam, sandy			_		_	_	
_		loam, fine		_	_			_	
		sandy loam			_				
	7-11	Sandy loam,	ML, SM	A-2-4, A-4	0	0-15	85-100	85-100 75-100	45
		fine sandy							
-		loam			_				
	11-15	Sandy loam,	SM, ML	A-2-4, A-4	0	0-15	85-100	85-100 75-100	45
		fine sandy							
		loam		. —	_			_	
	15-80	Bedrock	:	:	-	-	-	-	_
52B:									
Summerville	0-3	Very fine sandy  SM,	SM, ML	A-4	0-3	8-0	86-100	86-100 82-100	71
_		loam, fine			_		_	_	
		sandy loam,			_			_	
		loam							
	3-13	Fine sandy	SM, ML	A-4	8-0	0-15	70-100	65-100	45
-		loam, channery							
-		fine sandv			_				
		loam. verv							
		4							
_		rine sandy							
		Loam							
	13-80	Unweathered	:	:		:	:	:	_
_		bedrock							
57:									
Carbondale	0-38	Muck	PT	A-8	0	0	100	100	1
	38-80	Mucky peat	PT	A-8	0	0	100	100	90
				_	_			_	
Lupton	0 - 4	Peat	PT	A-8	- 0 -	_ o	100	100	Т
	4-80	Muck	PT	A-8	0	0	100	100	90
E	0		E	-			0	0	7
Tawas	07-0	Muck		A-8	o (	o (	TOOL	00 T	
	26-80	Sand, 1	SP-SM, SP	A-3	o 	0	95-100	00T-06   00T-56	45
		sand, gravelly							
-		sand							
_					_		_		

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragn	Fragments	Per	Percentage p sieve numb	P. P.
and soil name			Unified	AASHTO	>10	>10 3-10	4	10	
	H.				Pct	Pct			
28:									
Dawson	0-10	Peat	PT	A-8	0	0	100	100	1
	10-38				0	0	100	100	90
	38-80	Fine sand, sand SM,	SM, SP-SM	A-2-4, A-3	0	0	90-100	50-100 40	40
Greenwood	0-65	Mucky peat	PT	A-8	0	0	100	100	1
	65-80	Muck	PT	A-8	0	0	100	100	90
Loxley	8-0	Peat	PT	A-8	0	0	100	100	1
	8-80	Muck	PT	A-8	0	0	100	100	90
:63									
Chippeny	0-20	Muck			0	0	100		1
	20-28		CL, SM, CL-ML A-6,	A-6, A-4, A-	0	0-15	100	40-100	25
		loam, very gravelly sandy		Z - 4					
		loam							
	28-80	Bedrock	!	:	<u> </u>		-	-	1
Nahma	0-11	Muck	ЪТ	A-8	0	0	100	100	- 1
	11-14	Mucky loam,	ML, SC-SM	A-4	0	0	95-100	00	50
		loam, fine			_	_		_	
_		sandy loam	_		_		_	_	
	14-17	Fine sandy	ML, SC-SM	A-4	0	0	95-100	95-100 85-100	50
	17-10	loam, loam	MO	4			001	00 L - R0	r C
	1 1	loam, loam		F	 	>	1		2
_	19-24	Fine sandv	SC-SM, ML	A-4	0	0-3	95-100	95-100 75-100	45
_		loam, loam,							
_		gravelly fine	_		_			_	
	,	sandy loam							
	24-80	Bedrock	-	!	-	:	-	-	1
60: Histosols	0-91	Muck	ΡŢ	A-8	0	0	100	100	1
Aquents	0-80	Variable	-	:	0	0	-	:	'
61. Pits									
62F: Udipsamments	0-80	Sand	;		0	0	85-100	85-100   75-100   30	30
Udorthents	0-80	Variable	;	;	-	-	-	:	'
_				_	_			_	

Table 16. -- Engineering Index Properties -- Continued

			Classification	ication	Fragments	ents	Per	Percentage p	Q a
Map symbol	Depth	USDA texture			>10	3-10	va	ieve n	dmi
			Unified	AASHTO	inches inches	inches	4	10	
	uI				Pct	Pct			
64B: Kiva	0 - 3	Gravelly sandy loam, fine	MS	A-2-4, A-4	0	8 - 0	65-100	65-100 60-100	35
	3-6	Fine sandy   Ioam, loamy	SM	A-2-4, A-4	o 	8-0	65-100	65-100   60-100	35
	6-15	sand  Gravelly sandy   loam, fine	SM	A-2-4, A-4	 o	8-0	65-100   60-100	60-100	35
	15-23	sandy loam Gravelly loamy	ន្ទ	A-3, A-2-4	0	0-15	50-100 45-100 25	45-100	25
	23-80	sand, sand  Stratified sand SP	SP	A-1, A-3	0	0-40	40-100 35-100 10	35-100	10
		to very gravelly sand							
		to gravelly sand							
64D:									
Kiva	0-3	Gravelly sandy loam, fine	SM	A-2-4, A-4	0	8-0	65-100   60-100	60-100	35
		sandy loam							
	3-6	Fine sandy	SM	A-2-4, A-4	0	8-0	65-100	60-100	35
		loam, loamy							
	6-15	Gravelly sandy	SM	A-2-4, A-4	0	8-0	65-100	60-100	35
		loam, fine sandy loam							
	15-23	Gravelly loamy sand	<b>д</b>	A-3, A-2-4	0	0-15	50-100 45-100 	45-100	25
_	23-80	Stratified sand SP	SP	A-1, A-3	0	0-40	40-100 35-100 10	35-100	10
		to very							
		sand, very							
65D: Jeske, bedrock									
terrace	0 - 3	Highly   decomposed	ЪТ	A-8	0	0	100	100	П
-	(	plant material	;	(					,
	3-21	Sand	SP-SM, SP	A-3	0 0	0 0	95-100	90-100	9
_	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	bedrock		    -	> 	<b>-</b> -			
	31-80	Unweathered   bedrock	;	;	:	:	:	:	'
_		_		_	_	_	_		

Table 16. -- Engineering Index Properties -- Continued

			Classification	cation	Fragments	ents	Peı	Percentage p	Δ,
Map symbol and soil name	Depth	USDA texture			>10	3-10	01	ieve nu	QIII
			Unified	AASHTO	inches inches	inches	4	10	
	ű				Pot	Pct			
65D: Gongeau, bedrock									
	0 - 5	Muck	PT	A-8	0	0	100	100	1
	2-7	Mucky loamy	SM	A-2-4	0	0	95-100	95-100   90-100	
	7-18	Sand	SP-SM, SP	A-3	0	0	95-100	90-100	60
	18-29	Weathered		;	0	0	;	;	'
	29-80	bedrock Unweathered	:	;					'
		bedrock							
Deerton, bedrock									
terrace	0-1	Highly   decomposed	PT	A-8	0	0	100	100	1
		plant material							
	1-9	Sand	3M, 9		0	0-5	85-100	80-100	40
	9-10	Loamy sand,	SP, SM, SP-SM A-2-4	A-2-4, A-3	8-0	0-15	70-100	65-100	
		sand							
	10-25	Channery sand,	SP-SM, SM, SP	SP A-3, A-2-4	8-0	0-15	70-100	65-100	35
		loamy sand,							
_	25-39	Weathered		;		!			'
	)	bedrock							
	39-80	Unweathered	-	;	;	:	1	:	'
		bedrock							
65F:									
terrace	0-3	Highly	H	A-8	0	0	100	100	1
		decomposed			_				
	,	plant material							
	3-21	Sand	SP-SM, SP	A-3	o 0	0 0	95-100	00T-06	9
	ZI-3I	wearnered   bedrock	:	!	>	>	-	:	1
	31-80	Unweathered	-	;	:	:	-	-	'
		bedrock							
Gongeau, bedrock									
terrace	0 - 5	Muck	PT	A-8	0	0	100	100	Н
	5-7	Mucky loamy		A-2-4	0	0	95-100	95-100   90-100	60
	1	sand		(			L	0	Ç
	7-18	Sand	SP-SM, SP	A-3	0 0	0 0	95-100	001-06	60
	18-29	Weathered	-	:	0	0	-	-	'
	29-80	Unweathered	1	;	-	-	-	;	'
		bedrock			_				
_					_	_		_	

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	lcation	Fragi	Fragments	Per	Percentage p	d e
	4				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	H				Pct	Pct			
65F:									
terrage	0-1	Highly	Ld	8-8	0	c	100	100	_ '
	1	decomposed	1	) <u>1</u>	· - —	,			
_		plant material							
_	1-9	Sand	SP-SM, SP	A-3	0	0-5	85-100	80-100	40
_	9-10	Loamy sand,	SP, SM, SP-SM A-2-4	A-2-4, A-3	0 - 8	0-15	70-100	70-100   65-100   35	35
		channery sand,							
	,	sand						,	
	10-25	Channery sand,	SP-SM, SM, SP	SP A-3, A-2-4	8 - 0	0-15	70-100	70-100 65-100	35
_									
	25-39	Weathered	-	;	-	:	:	:	
		bedrock			_				
_	39-80	Unweathered	-	;	-	-	-	;	_
		bedrock							
66D:									
Ruse, bedrock					_	_	_		
terrace	0-10	Mucky silt loam ML	ML	A-4	0	0	95-100	90-100	80
	10-13	Silt loam	ML	A-4	0	0	95-100	95-100   90-100   80	80
	13-19	Weathered	-	:	:	:	:	:	'
		bedrock				_			
	19-80	Unweathered	:	:	:	:	!	:	' _
Ensign, bedrock						_	_		
terrace	0-10	Fine sandy	SM, ML	A-4	0	0-30	95-100	95-100   90-100	65
_		loam, very			_	_			
		fine sandy							
		loam			_				
	10-14	Fine sandy	ML, SM	A-4	0	0-30	95-100	90-100	65
		loam, very							
		fine sandy							
	,	Toam							
	14-18	Weathered	-	:	<u> </u>	:	!	!	'
	18-80	Unweathered	;	;	:	;	;	;	'
		bedrock							
_					_		_		_

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Fragments	lents	Per	Percentage	Q <sub>1</sub>
Map symbol and soil name	Depth	USDA texture			>10	3-10	roj	sieve numb	dmi
			Unified	AASHTO	inches inches	inches	4	10	
_	п				Pct	Pct			
66D: Nykanen, bedrock				- — —					
terrace	0 - 4	Very fine sandy loam, fine	SM, ML	A-2-4, A-4	0	0	85-100   80-100	80-100	50
	4-14	sandy loam	MI	A - C - K		4	0 0 0	и о	r C
_	μ - -	loam, fine			 	r i			2
	, ,	sandy loam							
	14-25	weathered   bedrock	:	:	:	!	:	!	1
	25-80	Unweathered bedrock	!	:		-	:	:	'
Ruse, bedrock	0-10	Mucky silt loam ML	MI	- 4 4- 4	o	c	95-100	90-100	80
3	10-13	Silt loam	ML	A-4	0	0	95-100   90-100	90-100	80
	13-19	Weathered	;	!	:	-	-	!	'
	19-80	Thweathered	;		;			:	'
		bedrock							
Ensian, bedrock									
terrace	0-10	Fine sandy	SM, ML	A-4	0	0-30	95-100   90-100	90-100	65
		loam, very							
		loam							
	10-14	ndy	ML, SM	A-4	0	0-30	95-100   90-100	90-100	65
		Loam, very							
	14-18	Weathered	-	:	:	-		:	'
	18-80	Unweathered	;		1		-	-	'
		bedrock							
Nykanen, bedrock									
terrace	0 - 4	Very fine sandy SM,	SM, ML	A-2-4, A-4	0	0	85-100 80-100	80-100	50
		sandy loam							
	4-14	Very fine sandy   ML,	ML, SM	A-2-4, A-4	0	0 - 4	85-100 80-95	80-95	50
		sandy loam							
	14-25	Weathered	:	-	-	-	:	-	'
	0	bedrock							
	0 0 0	bedrock	:	! !	!	:		:	1
_		_		_	_		_	_	

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragn	Fragments	Per	Percentage p sieve numb	a P
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	п				Pct	Pct			
Pits, quarry									
69B:	,								
Escanaba	0-1	Moderately	PT	A-8	0	0	100	100	_
		decomposed plant material							
	1-3	Loamy fine	SM, SP-SM, SP	A-4, A-3, A-	0	8-0	90-100 85-100	85-100	40
		sand, fine	•	2 - 4					
		sand, loamy				_		_	
		sand, sand				_			
	3-6	Sand, fine	SP, SP-SM, SM	SM A-2-4, A-3,	0	8-0	90-100 85-100	85-100	40
				A-4					
	6-26	_	SP, SP-SM, SM	SM A-2-4, A-3,	0	8-0	90-100 85-100	85-100	40
-				A-4					
							,		
	26-35		SM	A-2-4, A-4	0	8-0	90-100	90-100 85-100	40
		line sandy							
_		fine gand							
_	35-42		MS	A-2-4. A-4	o	8-0	90-100 85-100	85-100	50
	0	fine sandv			,	) )	1	 	)
_									
	42-80	Gravelly fine	SM	A-2-4, A-4	0	0-25	70-100 65-95	65-95	45
		sandy loam,						-	
		sandy loam						_	
. 412									
Evart	0-10	Loam, silt loam ML	MT.	A-4	o	0-5	95-100	90-100	7.5
	10-18		SP, SM	A-4, A-3	0	0 - 5	95-100	95-100   90-100   40	40
		sand, sand							
	18-80	Sand, fine	SP-SM, SM, SP	SP A-3, A-1	0	0-5	65-100	65-100   60-100   30	30
		sand, gravelly						_	
		sand					_		
1		77.	1	-			6	-	0
	0	loam, silt	THE STATE OF THE S	F - U	>	>	) H	) H	0
	6-16	Silt loam, very ML	ML	A-4	0	0	100	100	85
		fine sandy							
		loam				_		_	
	16-80	Loamy fine	SP-SM, SM, SP	SP A-3, A-2-4	0	0	100	100	50
		sand, fine		_				_	
		sand, sand		_				_	
_		_				_	_	_	

Table 16. -- Engineering Index Properties -- Continued

			Classification	ication	Fragments	nents	Ъ	Percentage p	ο O
and soil name	персп	USDA texture			>10	3-10		sieve numb	O III
			Unified	AASHTO	inches inches	inches	4	10	_
	п				Pct	Pct			
72E:									
Deerton,		_			_	_	_		
dissected	0-1	Highly	PT	A-8	0	0	100	100	_
		decomposed			_	_			
		plant material			_	_	_		_
	1-9	Sand	SP-SM, SP	A-3	_ o _	0-5	85-100	85-100   80-100	40
	9-10	Loamy sand,	SP, SM, SP-SM A-2-4,	A-2-4, A-3	0-8	0-15	70-100	70-100   65-100   35	35
	_	channery sand,		_	_	_			_
		sand			_				
	10-25	Channery sand,	SP-SM, SM, SP	SP A-3, A-2-4	8-0	0-15	70-100 65-100	65-100	35
	_	loamy sand,		_	_	_			
	_	sand			_	_	_		
	25-39	Weathered	:	:	-	-	:	-	_
		bedrock			_				
	39-80	Unweathered	-	-	-	-	1	-	_
		bedrock			_				
F									
TOWER THE PERSON		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	E				0	,	
dissected	0 - 7	Arugur	H	A-8	> -	>	007	0 O T	'
		decomposed				_			
_		plant material				_			
	2-11		SM	A-2-4	0 - 4	0-5	85-100 80-95	80-95	75
	11-15	Sand, loamy	SM, SP-SM	A-3, A-2-4	0-3	0-2	85-100 80-95	80-95	35
		fine sand			_		_		
	15-24	Sand, loamy	SC-SM, SP-SM	A-2-4, A-3	0-3	0-5	85-100 80-95	80-95	35
		fine sand			_		_		
	24-59	Sandy loam,	SM	A-4, A-2-4	0-3	0-5	85-100	80-95	45
		loamy sand			_	_			
	29-80	Sandy loam	SC-SM	A-2-4, A-4	0-3	0-5	85-100 80-95	80-95	45
					_	_			
Trout Bay,					_	_			
dissected	0-19	Muck	PT	A-8	0	0	100	100	П
	19-34	Weathered	-	-	-	-	:	-	_
		bedrock			_	_	_		
	34-80	Unweathered	-	!	:	!	:	-	
_		bedrock				_			
					_				

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classiicacion	cacion	r ragments	en ca	7	rercentage p sieve numb	dur dur
and soil name			2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	E	>10	3-10		6	
			Unitied	AASHTO	ıncnes	Inches	41	P	
	ដ				Pat	Pct			
72F: Deerton,									
dissected	0-1	Highly	PT	A-8	0	0	100	100	'
		decomposed							
	1-9	Sand	SP-SM, SP	A-3	0	0-5	85-100	80-100	40
	9-10	Channery sand,	-	A-2-4, A-3	8-0	0-15	70-100   65-100	65-100	35
		loamy sand,				_	_		
_	C		į			L	7	r L	L
	T0-75	Channery sand,	SP-SM, SM, SP	SP A-3, A-2-4	8-0	GT-0	001-59 001-07	00T-59	35
		sand							
	25-39	Weathered	-	;	-	-	-	-	'
		bedrock				_			
	39-80	Unweathered	:	-	:	:	-	-	'
		4							
Tokiahok,									
dissected	0-2	Highly	PT	A-8	0	0	100	100	1
		decomposed							
	,								
	2-11			_ ,	0 - 4	0-5	85-100	80-95	75
_	11-15	Sand, Loamy	SM, SP-SM	A-3, A-2-4	0-3	0-5	85-100	80-95	35
	15-24		SC-SM, SP-SM	A-2-4, A-3	0-3	0-5	85-100 80-95	80 - 95	35
	1				) )	)	1	0	)
	24-59	$\overline{}$	SM	A-4, A-2-4	0-3	0-5	85-100	80-95	45
-									
	59-80	Sandy loam	SC-SM	A-2-4, A-4	0-3	0-5	85-100	80-95	45
Trout Bay,									
dissected	0-19	Muck	PT	A-8	0	0	100	100	Н
_	19-34	Weathered	-	-	:	!	:	-	'
_	34-80	Thweathered		;	-				
	9	bedrock							
76C: Garlic.									
dissected	0-2	Moderately	PT	A-8	0	0	100	100	'
		decomposed				_	_		
	,	plant material							
	0 10	7	SP-SM		0 0	0 0	95-100	90-100 45	45
	11-6	sand,	SP, SP-SM,		o (	o (	00T-96	00T-06	4 5
	11-20	fine	SP, SM,		0 0	0 0	95-100	90-100	45
	20-29	fine	SM,		0 (	0 (	95-100 90-100 45	90-100	45
	29-80	Sand, fine sand SP,	SM,	SP-SM A-Z-4, A-3	o	<b>o</b>	00T-96	00T-06	4 5
_		_			_	_	_		

Table 16. -- Engineering Index Properties -- Continued

Map symbol   Depth   Unitied   AASHTO   1100   3-10   3-								1		
In   In   In   In   In   In   In   In		Depth	USDA texture	Classii	ication	Fragm	nents	Per	centage sieve m	o dur
The composed						>10	3-10			
In   Secretary				Unified	AASHTO	inches	inches	4	10	
No.   No.   Highly   PT   No.   No		ų				Pot	Pct			
Accomposed   PT   A-8   0   0   10	760:									
1.0	dissected	0-2	Highly	PT	A-8	0	0	100	100	
1-2   Plant material   SM   A-2-4   0   0-8   90-100   55-100			decomposed			_				
1.5   Sand, loany   SM, SP-SM   A-1, A-3   0   0-8   90-10   85-100		2-7	plant material	×	  A-2-4	0	8-0	90-100	85-100	40
Sand   Sand   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100		7-9			-	0	8-0	90-100	85-100	40
3-27   Loamy Sand,   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100   8		,								
27-80   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100		9-27				0	8-0	90-100	85-100	40
Secreted		27-80			A-3, A-2-4	0	8-0	90-100	85-100	40
Fine sand,	_									
Sected  0-1   Highly   PT   A-8   0   0   100   100     Sected  0-1   Highly   PT   A-8   0   0   100   100     Dlant material   PT   A-2-4, A-3   0   0   100   95-100     Dlant material   Sand, fine sand SM, SP-SM   A-2-4, A-3   0   0   100   95-100     11-15   Sand, fine sand SM, SP-SM   A-2-4, A-3   0   0   100   95-100     11-15   Sand, fine sand SM, SP-SM   A-4-4, A-3   0   0   100   95-100     11-16   Sand, fine sand SM, SP-SM   A-4-4, A-3   0   0   100   95-100     11-17   Sand, very   A-4   A-4   A-4   A-4   0   0   100   95-100     11-18   Sand fine sand SM, SP-SM   A-4-4, A-3   0   0   100   95-100     11-20   Sand fine sand SM, SP-SM, SP-SM, SP-SM   A-3-4   0   0   95-100   90-100     11-20   Sand fine sand SP, SP, SM, SP-SM   A-3-4   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4   A-3-3   0   0   95-100   90-100     11-20   Sand, fine sand SP,			fine sand,			_	_			
Highly   PT   A-8   0   0   100   100			sandy loam,							
Seected  0-1   Highly   PT   A-8   0   0   100   100			fine sandy loam							
11-15   Fine sand   PT   A-2-4, A-3   0   0   100   100										
1-5   Fine sand, sand   Mr. SP-SM   A-2-4, A-3   0   0   100   100	Voelker,					_	-			
1-5   Fine sand, sand   SM, SP-SM   A-2-4, A-3   0   0   100   95-100	dissected	0-1	Highly	ЪТ	A-8	0	0	100	100	'
1-5   Fine sand, Sand,			aecomposed							
11-15   Sand, fine sand SM, SP-SM   A-2-4, A-3   0   0   100   95-100     11-15   Sand, fine sand SM, SP-SM   A-2-4, A-3   0   0   100   95-100     13-31   Loamy very fine   SM, ML   A-4   A-6   0   0   100   95-100     15-31   Loamy very fine   SM, ML   A-4   A-7   0   0   100   95-100     15-31   Loamy very fine   SM, ML   A-4   A-2   0   0   100   95-100     15-31   Loamy very fine   SM, ML   A-4   A-2-4   0   0   100   95-100     15-31   Sand, fine sand SP, SP-SM, SM   A-3, A-2-4   0   0   100   95-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     11-20   Sand, fine sand SP, SM, SP-SM   A-3-4, A-3   0   0   95-100   90-100     11-20   Sand, fine SAN   A-3-4, A-3   0   0   95-100   90-100     11-20   SAN   A-3-4, A-3   0   0   95-100   90-100     11-20   SAN   A-3-4, A-3   0   0   95-100   90-100     11-20   SAN   A-3-4, A-3   0   0   95-100   90-100     11-20   SAN   A-3-4, A-3   0   0   95-100   90-100     11-20   SAN   A-3-4, A-3		7 - 7		×		c	c	00	95-100	7.0
11-15   Sand, fine sand SM, SP-SM		н п -		2 2	N - 2 - 4 N - 3	o c	, ,	0 0	100	
13-31   Sand, fine sand   SM, SP-SM   A-2-4, A-3   0   0   100   95-100     31-39   Loamy very fine   SM, ML   A-4   0   0   100   95-100     1 com, fine sandy   Stratified fine   ML, SM   A-4, A-2-4   0   0   100   95-100     1 com, fine sand   SP-SM   A-4, A-2-4   0   0   100   95-100     1 composed   PT   A-8   0   0   95-100     1 composed   PT   A-8   0   0   95-100     1 composed   PT   A-8   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   SP-SM, SM   A-3, A-2-4   0   0   95-100     1 composed   PT   PT   PT   PT   PT   PT   PT   P		11-11	ting ting		A-3 A-2-4	o c	o c	0 0	95-100	0 6
31-39   Loamy very fine   SM, ML   A-4   N   0   0   100   95-100		15-31	Fine		A-2-4. A-3			100	95-100	50
11-20   Sand, very   Fine sand   SP. SM. SP. SM A-2.4   0   0   0   100   95-100		31-39	244	. N	A-4 - 1 B-3			0 0	95-100	י ה ה
fine sandy   sandy loam, fine   sandy loam, fine   sandy loam, fine   sandy loam   sand to loamy   sand to loamy		1	very	1	-	 	 >	) )	9	)
loam, fine   sandy loam   sandy loam   sandy loam   sandy loam   sandy loam   sandy loam   sand to loamy   sand to loamy   to silt loam   to silt loam   sected   0-2   Moderately   PT   A-8   0   0   100   100   100   110   11-20   Sand   SP-SM, SM   A-3, A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM, A-3, A-2-4   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM, A-3, A-2-4   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100   100-1000   100-1000   100-1000   100-1000   100-1000   100-1000   100-1000   100-1000   100-1000   10	_		U							
11c,   sandy loam	_				. —	_		_		
39-80   Stratified fine   ML, SM   A-4, A-2-4   0   0   100   95-100	_					_	_			
very fine sand   Lic,   Lo silt loam   Lo silt loam   Lic,   Lic		39-80	Stratified fine			0	0	100	95-100	40
to silt loam   Lo silt loam   Lo silt loam   Lic,   Lo silt loam   Lic,   Lo silt loam   Lic,   Lo silt loam   Lic,   Lic silt loam   Lic,   Lic silt loam   Lic,   Lic sand, sand   Lic,   L			sand to loamy							
11-20   Sand, fine sand   SP. SM. SP-SM   A-2 + 4, A-3   0   0   0   100   100   100   11-20   Sand, fine sand   SP. SM. SP-SM   A-3 + 2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP. SM. SP-SM   A-3 + 2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP. SM. SP-SM   A-3 + 2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP. SM   SP-SM   A-2 + 4, A-3   0   0   95-100   90-100   11-20   Sand, fine sand   SP. SM   SP-SM   A-2 + 4, A-3   0   0   95-100   90-100   100-100			to silt loam							
11-20   Sand, fine sand   SP. SM   A-3   B-2-4   A-3   B-10   B-100   B-100   B-100   B-2-8   B-2-4   B-2-8   B-2-100   B-2-100   B-2-100   B-2-100   B-2-100   B-2-100   B-2-100   B-2-20   B-2			. —.							
Composed   A-8   Composed   A-8   Composed   A-8   Composed   A-8   Composed   A-8   Composed   A-3   A-3   A-2   A-3   Composed   A-3   A-3   A-2   A-3   Composed   A-3	76E:									
decomposed	dissected	0-2	Moderately	PT	A-8	0	0	100	100	Т
Plant material   SP, SP-SM   A-3   0   0   95-100   90-100     Sand   Sp, SP-SM, SM   A-3, A-2-4   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     SP-SM   SP-SM   A-2-4, A-3   0   0   95-100   90-100     SP-SM   SP-SM   SP-SM   A-2-4, A-3   0   0   95-100   90-100     SP-SM   SP-SM   SP-SM   A-2-4, A-3   0   0   95-100   90-100     SP-SM			decomposed		. —	_	_	_		
Sand   SP, SP-SM   A-3   0   0   95-100   90-100     Fine sand, sand   SP, SP-SM, SM   A-3, A-2-4   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100		,	plant material							
Sand, fine sand   SP, SP-SM, SM A-3, A-2-4		0 .	1	SP-SM	A-3	0 0	0 0	95-100	90-100	45
Sand, fine sand SP, SM, SP-SM A-3, A-2-4 Sand, fine sand SP, SM, SP-SM A-2-4, A-3 Sand, fine sand SP, SM, SP-SM A-2-4, A-3		, y .	sand,	SP-SM,	1 A-3, A-2-4	o 0	<b>&gt;</b> 0	95-T00	90-100	4 7
Sand, fine sand SP, SM, SP-SM A-2-4, A-3 0 0 0 Sand, fine sand SP, SM, SP-SM A-2-4, A-3 0 0		11-20	tine		(A-3, A-2-4	0 0	0 0	95-100	90-100	45
Sand, fine sand SP, SM, SP-SM A-2-4, A-3 0 0		20-29	rine	SM,	1 A-2-4, A-3	o (	э (	00T-56	00T-06	45
		29-80	tine	SM,		0	0	95-100	90-100	45

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Clas	Classification	Fragn	Fragments	Per	Percentage p	dur Jmb
					>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	H				Pct	Pct			
76E: Rline Take				. — —					
dissected	0-2	Highly	PT	A-8	0	0	100	100	'
		decomposed							
	2-7	Loamy sand	SM	A-2-4	0	8-0	90-100	90-100 85-100	40
	7-9	Sand, loamy	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100 40	40
	9-27	Loamy sand,	SM, SP-SM	A-3, A-1	0	8-0	90-100	90-100 85-100	40
_		sand		. —	_		_		
	27-80		SM, SP-SM	A-3, A-2-4	0	8-0	90-100	90-100 85-100 40	40
		sand, loamy							
		fine sandx							
2011001									
יייייייייייייייייייייייייייייייייייייי	0-1	Highly	Fd	α-α	c	c	100	00	'
	H	decomposed	1	) !	· 	,	) )	) )	
		plant material		_					
	1-5	Fine sand, sand	SM, SP-SM		0	0	100	95-100	50
	5-11	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	95-100	50
_	11-15	Sand, fine sand		٠.	0	0	100	95-100	
_	15-31	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	95-100	
	31-39	Loamy very fine	SM, ML	A-4	0	0	100	95-100	55
		sand, very							
		loam fine							
_									
	39-80		ML, SM	A-4, A-2-4	0	0	100	95-100	40
_		sand to loamy			_			_	
		very fine sand							
		to silt loam							
76F:									
Garlic,			ļ		_				
dlssected	7-0	Moderately		ν ν	>	>	00	001	1
		plant material							
	2 - 9	Sand	SP, SP-SM	A-3	0	0	95-100	5-100 90-100	45
_	9-11	Fine sand, sand	SP, SP-SM,	SM A-3, A-2-4	0	0	95-100	90-100	
_	11-20	Sand, fine sand	ЗЪ,	SM, SP-SM A-3, A-2-4	0	0	95-100	90-100	45
_	20-29	Sand, fine sand	SP, SM,	SP-SM A-2-4, A-3	0	0	95-100		45
_	29-80	Sand, fine sand  SP,	SW,	SP-SM A-2-4, A-3	0	0	95-100	95-100   90-100	45
_					_				

Table 16. -- Engineering Index Properties -- Continued

			10000	100	1 to 1 to 1 to 1 to 1 to 1 to 1 to 1 to	1	100	4400400	,
Map symbol	Depth	USDA texture	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		3		4	sieve numb	ımb
and soil name	ı				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	u				Pct	Pct			
76F:									
dissected	0-2	Highly	PT	A-8	 0	0	100	100	'
_		decomposed			_	_	_	_	
		₽							
	2-7			A-2-4	0	8-0	90-100	90-100 85-100	40
	7-9	Sand, loamy	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100 40	40
	9-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
-									
_	27-80	Sand, loamy	SM, SP-SM	A-3, A-2-4	0	8-0	90-100 85	85-100	40
_		sand, loamy			_	_	_	_	
_		fine sand,			_	_	_		
		sandy loam,							
_		line sandy							
		ТОЯПІ							
Voelker,									
dissected	0-1	Highly	PT	A-8	0	0	100	100	1
		decomposed							
		it mate					0	L	L
	 	sana,		A-Z-4, A-3			000	00T-06	0 5
	11-15	Sand, fine sand	SM, SP-SM	A-2-4, A-3 A-3, A-2-4	0 0	0 0	100	95-100	
	15-31	fine sand		A-2-4, A-3	0	0	100	95-100	
	31-39	very			0	0	100	95-100	
_		sand, very			_				
_		fine sandy		_	_	_	_		
		loam, fine				_	_	_	
		sandy loam			_	-	-	- 1	
	39-80	Stratitied fine ML,	ML, SM	A-4, A-2-4	0	0	100	95-100	40
		yery fine sand							
_									
Garlic	0-2	Moderately	PT	A-8	0	0	100	100	'
		decomposed							
_		plant material			_				
	2-9		SP-SM		0	0	95-100	90-100	45
	9-11	sand,	SP, SP-S	SM A-3, A-2-4	0	0	95-100	90-100	45
	11-20	fine	SP, SM,	A-3, A-2-4	o 	0	95-100	95-100   90-100	45
	20-29	fine	SM,	SP-SM A-3, A-2-4	0	0	95-100	95-100   90-100   45	45
_	29-80	Sand, fine sand SP,	SM,	SP-SM A-2-4, A-3	0	0	95-100	95-100   90-100	45
_		_			_	_	_	_	_

Table 16. -- Engineering Index Properties -- Continued

1		:		Classi	Classification	Fragi	Fragments	Peı	Percentage p	ρ,
In   In   In   In   In   In   In   In	Map symbol	Depth	USDA texture			>10	3-10		sieve nu	dmi
In   In   In   In   In   In   In   In				Unified	AASHTO	inches	inches	4	10	
No.   No.		In				Pct	Pct			
1.5   1.5	77B:	0-0	H: 72,	E-	00 			0	00	
Part material   SM   A-2-4   0   0-8   90-100   65-100		1	decomposed	4	o	<b>-</b> —	> 	0	 	
7-9   Interval   1-1   Interval   1-1   Interval   1-1   Interval   1-1   Interval   1-1   Interval   1-1   Interval   1-1   Interval   1-1   Interval   1-1   Interval   1-1   Interval   1-1   Interval   1-1   Interval			plant material			_				
7-9   Sand, loamy   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100		2-7			A-2-4	0	8-0	90-100	85-100	40
9-27   Loamy sand,   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100		7-9			A-1, A-3	o 	8-0	90-100	85-100	40
Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100		9-27				0	8-0	90-100	85-100	40
1-5   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100			sand		_	_				
Sandy loamy   Eandy   Each		27-80			A-3, A-2-4	o _	8-0	90-100	85-100	40
Filte sand,   Filte sand,			sand, loamy							
Fine sandy loam,			fine sand,							
10am   10am   10am   10am   10am   10am   10am   10am   10am   11-5   10am   10am   11-5   10am   10am   11-5   10am   10am   11-15   10am			sandy Loam,							
11-15   Fine sand   SM, SP-SM   A-2-4, A-3   0   0   100   100   100   100   100   11-5   Fine sand   SM, SP-SM   A-2-4, A-3   0   0   100   95-100   11-15   Sand, fine sand   SM, SP-SM   A-2-4, A-3   0   0   100   95-100   11-15   Sand, fine sand   SM, SP-SM   A-2-4, A-3   0   0   100   95-100   11-15   Sand, fine sand   SM, SP-SM   A-4   A-3   0   0   100   95-100   11-15   Sand, fine sand   SM, ML   A-4   A-2   0   0   100   95-100   11-15   Sand, fine sand   SM, ML   A-4   A-2   0   0   100   95-100   11-10   Sand, fine sand   SM, SP-SM   A-4   A-2-4   0   0   100   95-100   11-10   11-10   Sand, fine sand   SP-SM   SP-SM   A-3   A-2-4   0   0   100   100   11-10   11-10   Sand, fine sand   SP-SM   SM, SP-SM   A-3   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-3   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-3   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-3   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-2-4   0   0   95-100   90-100   11-20   Sand, fine sand   SP, SM, SP-SM   A-2-4   0   0   95-100   90-100   11-20   93-100   90-100   11-20   93-100   90-100   11-20   93-100   90-100   11-20   93-100   90-100   11-20   93-100   90-100   11-20   93-100   90-100   93-100   90-100   93-100			loam							
						_				
1-5   Fine sand   SM. SP-SM   A-2-4, A-3   0   0   100   95-100     5-11   Sand, fine sand   SM. SP-SM   A-2-4, A-3   0   0   100   95-100     11-15   Sand, fine sand   SM. SP-SM   A-2-4, A-3   0   0   100   95-100     15-31   Sand, fine sand   SM. SP-SM   A-2-4, A-3   0   0   100   95-100     15-31   Sand, fine sand   SM. ML   A-4   A-4   0   0   100   95-100     11-20   Moderately   PT   A-8   A-4   A-2-4   0   0   100   95-100     11-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   100   95-100     11-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     11-20   Sand, fine sand   SP-SM   SM-3, A-2-4   0   0   95-100     11-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     11-20   Sand, fine sand   SP-SM   SM-3, A-2-4   0   0   95-100     11-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     11-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     11-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   Sand, fine sand   SP-SM   A-3   A-2-4   0   0   95-100     12-20   SP-SM   A-3   A-2-4   0   0   95-100     12-20   SP-SM   A-3   A-3   A-3   A-3   A-3   A-3   A-3   A-3   A-3	Voelker	0-1	Highly	PT	A-8	0	0	100	100	'
1-5   Fine sand, sand   SM, SP-SM   A-2-4, A-3   0   0   100   95-100     5-11   Sand, fine sand   SM, SP-SM   A-2-4, A-3   0   0   100   95-100     11-15   Sand, fine sand   SM, SP-SM   A-2-4, A-3   0   0   100   95-100     15-31   Sand, fine sand   SM, ML   A-4   A-2   0   0   100   95-100     31-39   Loamy very fine   SM, ML   A-4   A-2   0   0   100   95-100     15-31   Sand, very   A-2   A-3   A-4   A-4   A-2   A-3   A-4   A-4     15-31   Sand, fine sand   SM, ML   A-4   A-2   A-3   0   0   100   95-100     11-07   Sand to loamy   A-4   A-2   A-3   A-2   A-3   A-			decomposed							
1-5   Fine sand, SM, SP-SM   A-2-4, A-3   0   0   100   95-100     11-15   Sand, fine sand SM, SP-SM   A-2-4, A-3   0   0   100   95-100     15-31   Sand, fine sand SM, SP-SM   A-2-4, A-3   0   0   100   95-100     31-39   Loamy very fine SM, ML   A-4   A-2-4   0   0   100   95-100     31-39   Loamy very fine Smdy   A-2-4, A-3   0   0   100   95-100     39-80   Stratified fine Stratified fine Strate Str		,					_		1	
11-21   Sand, fine sand SM, SP-SM   A-2-4, A-3   0   0   100   95-100     15-31   Sand, fine sand SM, SP-SM   A-2-4, A-3   0   0   100   95-100     15-32   Loamy very fine SM, SP-SM   A-4-4 A-3   0   0   100   95-100     15-35   Loamy very fine SM, SP-SM   A-4-4 A-3   0   0   100   95-100     15-36   Sand, very fine sand SP, SM, SP-SM   A-4, A-2-4   0   0   100   95-100     15-37   Sand, fine sand SP, SM, SP-SM   A-3-4-4   0   0   95-100     15-37   Sand, fine sand SP, SM, SP-SM   A-3-4-4   0   0   95-100     15-38   Sand, fine sand SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     15-39   Sand, fine sand SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-4, A-3   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-4, A-3   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-4, A-3   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-4, A-3   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-4, A-3   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-4, A-3   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-4, A-3   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-4, A-3   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-4, A-3   0   0   95-100     15-30   Sand, fine sand SP, SM, SP-SM   A-4, A-3   0   0   95-100     15-30   Sand, fine SP   SM, SP-SM   A-4, A-3   0   0   0   95-100     15-30   Sand, fine SP   SM, SP-SM   A-4, A-3   0   0   0   95-100     15-30   Sand, fine SP   SM, SP-SM   A-4, A-3   0   0   0   95-100     15-30   Sand, fine SP   SM, SP-SM   A-4, A-3   0   0   0   95-100     15-30   Sand, fine SP   SM, SP-SM   A-4, A-3   0   0   0   0   0     15-30   SAN   SP-SM   SP-SM   SP-SM   SP-SM   SP		1-5	sand,	SM,		o	0 0	T 00	95-100	
11-15   Sand, fine sand   SM, SF-SM   A-3, A-2-4   0   0   100   95-100     31-39   Loamy, very fine   SM, ML   A-4   0   0   100   95-100     sand, very fine sand; SM, SM   A-4, A-2-4   0   0   100   95-100     sand, very fine sand to loamy   A-4, A-2-4   0   0   100   95-100     sand, very fine sand to loamy   A-4, A-2-4   0   0   100   95-100     very fine sand to loamy   A-8   A-8   A-8   A-8   A-8     11-20   Sand, fine sand   SP, SP-SM, SM A-3, A-2-4   0   0   95-100     11-20   Sand, fine sand   SP, SM, SP-SM, SM, A-3, A-2-4   0   0   95-100     20-29   Sand, fine sand   SP, SM, SP-SM, A-3, A-2-4   0   0   95-100     20-29   Sand, fine sand   SP, SM, SP-SM, A-3, A-2-4   0   0   95-100     20-29   Sand, fine sand   SP, SM, SP-SM, A-3, A-2-4   0   0   95-100     20-29   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-29   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-29   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-29   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-29   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100     20-20   SP-SM   A-3, A-2-4, A-3   0   0   95-100     20-20   SP-SM   A-3, A-2-4, A-3   0   0   95-100     20-20   SP-SM   A-3, A-2-4, A-3   0   0   95-100     20-20   SP-SM   A-3, A-2-4, A-3   0   0   95-100     20-20   SP-SM   A-		1 - C - F	Line	Z Z	A-2-4, A-3	> c	o	000	00T-06	
31-39   Loamy, tine sand, very   A-4   A-2   B-4   B-2   B		15-21	rine fine	SM'	A-3, A-2-4	o c	o c	T00	95-100	
11-20   Sand, very   Fine sand   Sm, Km   A-4, A-2-4   0   0   100   95-100		21 - 2 E		, M		o c	> <		001-R0	о В
fine, fine sandy   loam, fine   sandy loam   sandy loam   sandy loam   sand to loamy   very fine sand to loamy   to silt loam   to silt loam   sand to loamy   sand to loamy   to silt loam   to silt l		υ T - Τ ο	very	SM,	* - -	> 	> 	0 0 1	00T-06	00
10am, fine   sandy loam   a-4, a-2-4   0   0   100   95-100     sand to loamy   very fine sand   pr   a-8   0   0   100   95-100     to silt loam   pr   a-8   0   0   100   100     11c   0-2   Moderately   pr   a-8   0   0   0   100     2-9   Sand   Sand   SP-SM, SM   a-3, a-2-4   0   0   95-100   90-100     11-20   Sand, fine sand   SP, SM, SP-SM   a-3, a-2-4   0   0   95-100   90-100     20-29   Sand, fine sand   SP, SM, SP-SM   a-3, a-2-4   0   0   95-100   90-100     20-29   Sand, fine sand   SP, SM, SP-SM   a-3, a-2-4   0   0   95-100   90-100     20-29   Sand, fine sand   SP, SM, SP-SM   a-3, a-2-4   0   0   95-100   90-100     20-29   Sand, fine sand   SP, SM, SP-SM   a-3, a-2-4   0   0   95-100   90-100     20-29   Sand, fine sand   SP, SM, SP-SM   a-2, a-3   0   0   95-100   90-100     20-29   Sand, fine sand   SP, SM, SP-SM   a-2, a-3   0   0   95-100   90-100     20-29   Sand, fine sand   SP, SM, SP-SM   a-2, a-3   0   0   95-100   90-100     20-29   Sand, fine sand   SP, SM, SP-SM   a-2, a-3   0   0   95-100   90-100     20-20   Sand, fine sand   SP-SM   a-2, a-3   0   0   95-100   90-100     20-20   Sand, fine sand   SP-SM   a-2, a-3   0   0   95-100   90-100     20-20   Sand, fine sand   SP-SM   a-3, a-2, a-3   0   0   95-100   90-100     20-20   Sand, fine sand   SP-SM   a-3, a-2, a-3   0   0   95-100   90-100     20-20   Sand, fine sand   SP-SM   a-3, a-2, a-3   0   0   95-100   90-100     20-20   SP-SM   a-3, a-2, a-3, a-2, a-3   0   0   95-100   90-100     20-20   SP-SM   a-3, a-2, a-3, a-2, a-3   0   0   95-100   90-100     20-20   SP-SM   a-3, a-2, a-3, a-2, a-3   0   0   95-100   90-100     20-20   SP-SM   a-3, a-2, a-3, a-3, a-2, a-3   0   0   95-100   90-100     20-20   SP-SM   a-3, a-2, a-3, a-3, a-3, a-3, a-3, a-3, a-3, a-3										
39-80   Stratified fine   ML, SM   A-4, A-2-4   0   0   100   95-100										
39-80   Stratified fine   ML, SM   A-4, A-2-4   0   0   100   95-100			sandy loam			_				
very fine sand		39-80	Stratified fine			o —	0	100	95-100	40
to silt loam	-		sand to loamy							
lic  0-2   Moderately   PT   A-8   0   0   100			very fine sand							
11-20   Sand, fine sand, fine sand   SP, SM, SP-SM   A-3   0   0   0   100			משור הסמור							
	77D:									
decomposed	Garlic	0-2	Moderately	PT	A-8	o —	0	100	100	-
Sand   Sand   SP. SP-SM   A-3   0   0   0   55-100   90-100			decomposed							
Sand   SP, SP-SM   A-3   0   0   95-100   90-100     Fine sand, sand   SP, SP-SM, SM   A-3, A-2-4   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100		(	plant material		· 		(	1		Ļ
Sand, fine sand   SP, SP-SM, SM A-3, A-2-4		2 - 2	,	SP, SP-SM		o (	o (	00T-26	00T-06	4 1
Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0     Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0		9-11	sand,	SP, SP-	M A-3, A-2-4	0	0	95-100	001-06	45
Sand, fine sand SP, SM, SP-SM A-3, A-2-4 0 0 0 Sand, fine sand SP, SM, SP-SM A-2-4, A-3 0 0		11-20	fine	SM,	M A-3, A-2-4	0	0	95-100	90-100	45
Sand, fine sand SP, SM, SP-SM A-2-4, A-3 0 0		20-29	fine	SM,	MA-3, A-2-4	0	0	95-100	90-100	45
	_	29-80	fine	SW,	M A-2-4, A-3	o —	0	95-100	90-100	45

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Fragn	Fragments	Per	Percentage	Q
Map symbol	Depth	USDA texture					02	sieve numb	dmi
and soil name					>10	3-10			
			Unitied	AASHTO	ıncnes	inches inches	41	O I	
	ä				Pot	Pa t			
77D:									
Blue Lake	0-2	Highly	PT	A-8	0	0	100	100	1
		decomposed plant material							
	2-7	Loamy sand	SM	A-2-4	0	8-0	90-100	85-100	40
	7-9		SM, SP-SM	A-1, A-3	0	8-0	90-100		40
					_				
	9-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100 40	40
_		sand		_	_			_	
	27-80	Sand, loamy	SM, SP-SM	A-3, A-2-4	0	8-0	90-100 85-100		40
_		sand, loamy			_		_	_	
					_				
_		fine sandy							
		loam							
Voelker	0-1	Highly	PT	A-8	0	0	100	100	'
		decomposed							
		plant material			_		_	_	
	1-5	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	- 0	100	95-100	50
	5-11	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	95-100	50
_	11-15			A-3, A-2-4	0	_ o	100	95-100 50	50
_	15-31	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	_ o	100		50
_	31-39	Loamy very fine	SM, ML	A-4	0	_ o	100	95-100	55
		sand, very			_				
		fine sandy							
		sandy loam							
	39-80		ML, SM	A-4, A-2-4	0	0	100	95-100	40
		sand to loamy							
		very line sand							
		רס אדור דסשווו							
77E:									
Garlic	0-2	Moderately	PT	A-8	0	0	100	100	1
_		decomposed			_	_		_	
_		plant material			_	_		_	
	2-9		SP-SM	A-3	0	0	95-100	90-100	45
	9-11	Fine sand, sand	SP-S	SM A-3, A-2-4	0	0	95-100	90-100	45
_	11-20	Sand, fine sand	SW,	Ą	0	0	95-100	95-100 90-100 45	45
_	20-29	Sand, fine sand	SP, SM, SP-SM		0	0	95-100	95-100 90-100 45	45
	29-80	Sand, fine sand SP,	SM,	SP-SM A-2-4, A-3	0	- 0	95-100	95-100   90-100   45	45
_		_		_	_	_	_	_	

Table 16. -- Engineering Index Properties -- Continued

Lodmys as M		+ 408H	Classif	Classification	Fragn	Fragments	Per	Percentage p	0 E
and soil name	) )				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	_
	ដ				Pat	Pct			
77E:									
Blue Lake	0-2	Highly	ЪТ	A-8	0	0	100	100	
		decomposed							
	c			·	-	6		- C	
	7-7				o (	χο α 	00T-06	90-100 85-100	4 C
	7-9	Sand, loamy	SM, SP-SM	A-1, A-3	0	8 -0	00T-06	90-100 85-100 40	40
_	0		700	K	_	0	7	0 0 0	
	77-6	Loamy sand,	we-ze 'we	C-W 'T-W	>	0	00 T - 06	001-00	 T
	1	sand		, ,	-	c		- 00	
_	7/-80	sand, loamy	SM, SF-SM	A-3, A-2-4	> -	χο - -	00T-06	00T-68	 4 O
		sand, loamy							
_		rine sand,							
		sandy loam,							
		tine sandy							
		loam							
7071	-1	#: Ch];	E	a c	_	c	0	0	
	H	decomposed	1		 	•	9	) 	
		nlant material							
	-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		K	-	c	0	1	
	C - T -	sana,			o (	> (	0 0 0	00T-C6	
	5-11	fine	SM,	A-2-4, A-3	0	0	100	95-100	20
_	11-15	fine	SM, SP-SM		0	0	100	95-100	
_	15-31	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	95-100	
_	31-39	Loamy very fine SM,	SM, ML	A-4	0	0	100	95-100	55
_		sand, very			_				_
_		fine sandy			_				_
_		loam, fine		_	_	_			_
_		sandy loam		_	_			_	_
_	39-80	Stratified fine ML,	Mr, SM	A-4, A-2-4	0	0	100	95-100	40
		sand to loamy		_	_				_
		very fine sand		_	_				
_		to silt loam		. —	_	_			_
					_			_	_
88:	7	74	E	0		c	6	-	
Catility	# C	Much Gronn 1 64 m	Ş	- C	> 6	5 6	1 C		
	34-80	Gravelly rine	CL-ML, SM	A-6, A-2-4	ກ - ວ	GT-0	26-07	0 0 - 0 0	 4 ⊃
		sandy Loam,							
_		gravelly sandy							
		loam, gravelly							
_		Loam							
_					_	_			

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classif	Classification	Fragn	Fragments	Per Per	Percentage p sieve numb	dur Jmb
and soil name	4				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	In				Pct	Pct			
: 88 80									
Ensley	0-2	Muck			0	0	100		Н
	2-7	Mucky loam,	SM, ML	A-4, A-2-4	0 - 4	0-7	90-100	85-100	50
		mucky fine	_		_	_	_		
	_	sandy loam,			_	_	_		
		mucky sandy							
	_	loam			_				
	7-19	Fine sandy	Mr, SM	A-4, A-2-4	0 - 4	0-7	90-100	90-100 85-100	50
		loam, sandy			_	_			
		loam, loam			_	_			
	19-80	Gravelly fine	SM	A-4	0 - 4	0-15	65-85	08-09	45
		sandy loam							
93:									
Tawas	0-26	Muck	PT	A-8	0	0	100	100	1
	26-80	Sand, fine	SP-SM, SP	A-3	0	0	95-100	90-100	45
		sand, coarse		_	_	_			
		sand, gravelly		_	_	_			
		sand							
Deford	0 - 4	Muck	PT	A-8	0	0	100	100	1
	4-80	Fine sand, sand SM,	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	85-100	40
95B:									
Liminga	0-1	Moderately	PT	A-8	0	0	100	100	_
	_	decomposed			_	_	_		
		plant material			_				
	1-7	Fine sand	SP-SM, SM	A-2-4	0	0-5	95-100	95-100	09
	7-9	Fine sand	SM, SP-SM	A-2-4	• •	0-2	95-100	95-100	
	9-22	Fine sand	SP-SM, SM	A-2-4	0	0-2	95-100	95-100   95-100	09
	22-31	Fine sand	SP-SM, SM	A-2-4	0	0-2	95-100	95-100   95-100	09
	31-80	Fine sand	SP-SM, SM	A-2-4	0	0-5	95-100	95-100 95-100	09
	_			_					

Table 16. -- Engineering Index Properties -- Continued

Lodmys as M		18D4 40811	Classif	Classification	Fragments	nents	Pe l	Percentage p	۳ E
and soil name					>10	3-10	•		
			Unified	AASHTO	inches inches	inches	4	10	
	ä				Pct	Pct			
104C:									
Fence, dissected	0-3	Very fine sandy   ML   loam	ML	A-4	o 	0	100	95-100	85
	3-7	Silt loam, very	ML	A-4	0	0	100	95-100	85
		fine sandy							
	-	Loam	134				,	L C	C L
	11-/	fine sandv	- E	*-¥	>	<b>-</b> -	0	00T-06	0
		loam							
	11-19	Silt loam, very ML	ML	A-4	0	0	100	95-100	85
		O1			_	_		_	
		loam, loamy							
	;						,		
	19-42		CL-ML	A-4	0	0	100	95-100	90
		loam, very							
		rine sandy							
	6	Loam			-		6	- C	L
	42-80	Stratified very SM, ML	SM, ML	A-4	o 	0	00T	00T-96	20
		tine sand to							
		Loamy very							
		Fig.							
		gandy loam to							
		loam to silt							
-		loam							
109D:									
Rousseau	0-1	Slightly	PT	A-8	0	0	100	100	1
_		decomposed		_	_	_		_	
		plant material			_	_		_	
	1-4	Fine sand	SM	A-2-4	0	0	100	100	75
_	4-20	Fine sand	SM	A-2-4	<u> </u>	0	100	_	75
	20-33	Fine sand	SM	A-2-4	• •	0	100		75
	33-66	Fine sand, sand	SP-SM, SM		• •	0-2	100		50
	08-99	Fine sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	100	95-100	50
		·	<u> </u>				0		ī
Dawson	0-10	Peat	T I	A-8	0 0	0 0	100		Т (
	10-20	Mucky peat	T.d.	A-8	0 0	0 0	100	T 00	90
	0 0	MUCA COLLAR	מיני אני	- W	<b>-</b> -		- C	7 6	0 0
	0000	משוום,			>	>	0 H I I I I I I I I I I I I I I I I I I		) #
_		_		_	_	_		_	_

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classif	Classification	Fragments	nents	Per	Percentage p sieve numb	dm1
					>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	I				Pat	Pct			
109F:	- 0		E-	α	c	c	001	00	
	H D	decomposed	14	9	>	>	o H	) )	
		plant material							
	1-4	Fine sand	SM	A-2-4	0	0	100	100	75
	4-20	Fine sand	SM	A-2-4	0	0	100	100	75
	20-33	Fine sand	SM	A-2-4	0	0	100	100	75
	33-66	Fine sand, sand	SP-SM, SM	A-2-4, A-3	0	0-5	100	95-100	50
	08-99	Fine sand, sand	SP-SM, SM	A-2-4, A-3	0	0 - 5	100	95-100	50
Cowec	0-1	Д Те	E-	ξ (1	·	c	00	00	-
ביייייייייייייייייייייייייייייייייייי	10 F	Michigan nost	1 6	0 0	o c	o c	0 0	0 0	۱ ٥
_	07-07 00-30	Mucky pear	- E-	0 0	o c		0 0	000	0 0
	38-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	. 0	90-100	Ŋ	40
125B:									
4 + 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	- 7	יי רקט וא	FO	8 - 8	c	c	100	100	
	H D	decomposed	1 4	0	>		9	) )	1
		plant material							
	1-2	Sandy loam,	SM	A-4, A-2-4	0	0	95-100	5-100 90-100	55
		fine sandy		_	_	_			
		loam		_	_	_		_	
	2-7		SM	A-4, A-2-4	0	0	95-100	5-100   90-100	55
		fine sandy							
	7 - 9	Sandy loam.	MS	A-4	0	c	95-100	90-100	5.5
				· <u>-</u>	· 	- — •	1	) 1	)
		loam			_				
	9-13	Fine sandy	SM	A-4	0	0	96-100	91-100	69
		loam, samuy							
_	13-19	Sandy loam,	SM	A-4	0	0	96-100	90-100	70
		fine sandy			_	_		_	
		loam		_	_				
	19-80	Sand	SP-SM	A-2-4	0	0	92-100	84-100	64
Kalkaska	0-1	Moderately	PT	A-8	0	0	100	100	1
		decomposed			_				
		plant material			_	_		_	
	1-6	Loamy sand	SM	A-2-4	0	0-5	95-100		50
	8-9	Loamy sand	SM	A-2-4	0	0-5	95-100	85-100	50
	8-12	Loamy sand,	SP-SM, SM	A-2-4, A-3	0	0-5	95-100	85-100	50
		sand			_				
	12-23	Sand	SM		0	0-5	95-100	95-100 85-100	
	23-38	Sand	SM	A-2-4, A-3	0	0-2	95-100	95-100 85-100	20
	38-80	Sand	SM	A-3, A-2-4	0	0-5	95-100	95-100 75-100	20
					_	_		_	

Table 16. -- Engineering Index Properties -- Continued

			4	1000	-	1			1
Map symbol	Depth	USDA texture		ıcatıon	ii dagi	- ragments	7 19 19 19	rercentage p sieve numb	r di
and soil name					>10	3-10			
			Unified	AASHTO	inches inches	inches	4	10	
	u I				Pat	Pct			
125D:		:		, 					
Stutts	1-0	Highly	LA_	A-8	0	0	100	100	1
		decomposed							
	-1	plant material	OM.	A - C - K	_ c	•	001	001-00	n n
	7 H	fine candy	5	F-7-6 /F-6	 	>	-		)
		loam							
	2-7	Sandy loam,	SM	A-4, A-2-4	0	0	95-100	90-100	55
							_	_	
		loam		_	_				
	7-9	Sandy loam,	SM	A-4	0	0	95-100	95-100   90-100	55
		fine sandy		_	_				
		loam		_	_				
	9-13	Fine sandy	SM	A-4	0	0	96-100	91-100	69
		loam, sandy			_	_	_	_	
		loam			_	_	_	_	
	13-19	Sandy loam,	SM	A-4	• •	0	96-100	96-100   90-100	70
		fine sandy			_	_	_	_	
		loam		_	_	_	_	_	
	19-80	Sand	SP-SM	A-2-4	0	0	92-100	84-100	64
מ אל אל אל אל אל אל אל אל אל אל אל אל אל	0-1	- Moderately	<u>-</u>	α .	c	c	100	100	
	ı ,	decomposed	<u> </u>	) <u> </u>	,	,			
		plant material							
	1-6	Loamy sand	SM	A-2-4	0	0-5	95-100	95-100 85-100	50
	8-9	Loamy sand	SM	A-2-4	0	0-5	95-100	95-100 85-100 50	50
	8-12	Loamy sand,	SP-SM, SM	A-2-4, A-3	0	0-5	95-100	95-100   85-100	50
		sand		_	_	_	_	_	
	12-23	Sand	SM	A-2-4, A-3	• •	0-2	95-100	95-100 85-100	50
	23-38	Sand	SM	A-2-4, A-3	0	0-5	95-100	95-100 85-100	50
	38-80	Sand	SM	A-3, A-2-4	0	0-5	95-100	95-100   75-100	50
		_		_					

Table 16. -- Engineering Index Properties -- Continued

			Classification	ication	Fragn	Fragments	Per	Percentage p	Д
Map symbol and soil name	Depth	USDA texture			>10	3-10	01	sieve numb	dmı
			Unified	AASHTO	inches	inches inches	4	10	
	uI -				Pct	Pct			
125E:									
Stutts	0-1	Highly	PT	A-8	0	0	100	100	1
		decomposed			_				
		plant material			_				
	0.2-2	Sandy loam,	SM	A-4, A-2-4	0	0	95-100	90-100	55
		fine sandy		_	_		_	_	
		loam		_	_		_	_	
	2-7	Sandy loam,	SM	A-4, A-2-4	0	0	95-100	95-100   90-100	55
	_	fine sandy		_	_	_	_	_	
	_	loam			_		_		
	7-9	Sandy loam,	SM	A-4	0	0	95-100	95-100   90-100	55
	_	fine sandy		_	_		_		
	_	loam		_	_		_		
	9-13	Fine sandy	SM	A-4	0	0	96-100	96-100 91-100	69
	_	loam, sandy		_	_		_		
	_	loam		_	_		_		
	13-19	Sandy loam,	SM	A-4	0	0	96-100	96-100   90-100	70
	_	fine sandy		_	_				
	_	loam			_	_	_		
	19-80	Sand	SP-SM	A-2-4	0	0	92-100	84-100	64
מל מפל רפע	- 1	10 to 00 to	E-	0 K	_	_	001	0	
	H	decomposed	1	·	• 	• •	) )	) )	
		plant material							
	1-6	Loamy sand	SM	A-2-4	0	0-5	95-100	95-100 85-100	50
	8-9	Loamy sand	SM	A-2-4	0	0-5	95-100	95-100 85-100 50	50
	8-12	Loamy sand,	SP-SM, SM	A-2-4, A-3	0	0-5	95-100	95-100 85-100 50	50
	_	sand		_	_		_		
	12-23	Sand	SM	A-2-4, A-3	0	0-5	95-100	95-100 85-100	50
	23-38	Sand	SM	A-2-4, A-3	0	0-5	95-100	95-100 85-100	50
	38-80	Sand	SM	A-3, A-2-4	0	0-5	95-100	95-100 75-100	50
				_					

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	ication	Frag	Fragments	Per	Percentage p sieve numb	a P
and soil name	4				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	H H				Pct	Pct			
135B:									
Munising,							_		
calcareons				_	_				
substratum	0-1	Highly	PT	A-8	0	0	100	100	_
		decomposed			_		_		
		plant material	_	_	_				
_	1-3	Fine sandy loam	SM	A-4	0-3	8-0	90-100 85-95	85-95	55
_	3-6	Fine sandy loam SM	SM	A-4	0-3	8-0	90-100 85-95	85-95	55
	6-23	Fine sandy loam	SM	A-4	0-3	8-0	90-100 85-95	85-95	55
	23-38	Loamy sand,	SM	A-4, A-2-4	0-3	8-0	90-100	85-95	35
_		fine sandy	_	_	_				
		loam		_					
	38-50	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	35
		loam, loamy	_	_	_				
		sand	_	_	_				
	50-63	Gravelly fine	SC-SM	A-4, A-2-4	0-3	8-0	70-90	65-85	45
_		sandy loam	_	_	_				
_	63-80	Gravelly fine	SC-SM	A-2-4, A-4	0-3	8-0	10-90	65-85	45
_		sandy loam		_	_		_		
								•	
Ensley	9-0	Muck			0	>	00T		<b>⊣</b>
	2-7	Mucky loam,	SM, ML	A-4, A-2-4	0 - 4	0-7	90-100	85-100	50
		mucky fine		_	_				
		sandy loam,		_	_				
		mucky sandy		_					
		loam		_					
_	7-19	Fine sandy	ML, SM	A-4, A-2-4	0 - 4	0-7	90-100	90-100  85-100	50
_		loam, sandy			_				
		loam, loam		_					
_	19-80	Gravelly fine	SM	A-4	0 - 4	0-15	65-85	08-09	45
		sandy loam	<u> </u>	! <u> </u>					
-									

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragn	Fragments	Per	Percentage p sieve numb	e p
and soil name	· - —				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	<b>н</b>				Pct	Pct			
145C:									
Munising,				. —	_	_	_		
dissected, very	_		_	_	_		_		
stony	0-1	Highly	PT	A-8	0	0	100	100	_
	_	decomposed	_	_	_		_		_
	_	plant material	_		_				
	1-2	Sandy loam,	SM	A-4, A-2-4	0-3	8-0	90-100 85-95	85-95	40
	_	loamy sand,	_	_	_				
	_	fine sandy	_		_				
	_	loam			_				
	2-10	Loamy sand,	SM	A-2-4	0-3	8-0	86-98	83-98	62
		fine sandy			_				
	_	loam, sandy	_	_	_		_		
	_	loam	_	_	_		_		
	10-14	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy	_	_	_		_		
	_	loam	_	_	_		_		_
	14-22	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy	_		_				
	_	loam	_	_	_				
	22-49	Fine sandy	SC-SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	40
	_	loam, loamy		_	_	_	_		
	_	sand, sandy		_	_	_	_		
	_	loam, loamy	_	_	_				
	_	fine sand	_	_	_		_		_
	49-63	Fine sandy	SC, SC-SM	A-2-4, A-4,	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy	_	A-6	_				
	_	clay loam,			_	_			_
		sandy loam	_		_	_	_		
	63-80	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
		loam, sandy			_				
	_	loam		_	_	_	_		
									_

Table 16. -- Engineering Index Properties -- Continued

	4			Classi	Classification	g	Fragments	ents	Per	Percentage	ρ
map symbor and soil name	Depth	USDA CEXCUIE					>10	3-10		Sieve numb	
			Uni	Unified	- A	AASHTO	inches inches	inches	4	10	_
	п						Pct	Pct			
1450:											
Yalmer,	_	_	_		_		_		_		_
dissected, very	_	_	_		_		_		_		_
stony	0-1	Highly	PT		A-8		0	0	100	100	_
	_	decomposed	_		_		_		_		_
	_	plant material	_		_		_		_		_
	1-3	Sand, loamy	SM, SI	SP-SM, S	SP A-3,	A-2-4	0	9-0	85-100	80-100	35
		sand, fine	_		_		_		_		_
	_	sand	_		_		_		_		_
	3-8	Sand, loamy	SM, SI	SP-SM, S	SP A-2-4,	, A-3	0	9-0	85-100 80-100	80-100	35
		sand, fine	_		_						_
	_	sand	_		_		_		_		_
	8-11	Sand, loamy	SM, SI	SP-SM, S	SP A-2-4,	, A-3	0	9-0	85-100 80-100	80-100	35
	_	sand, fine	_		_		_		_		_
	_	sand	_		_		_		_		_
	11-24	Sand, loamy	SM, SI	SP-SM, S	SP   A-2-4,	, A-3	0	9-0	85-100	80-100	35
	_	sand, fine	_		_		_		_		_
	_	sand	_		_		_		_		_
	24-40	Fine sandy	SM		A-2-4,	, A-4	0	9-0	85-100 80-100	80-100	35
	_	loam, loamy	_		_		_		_		_
	_	sand, sandy	_		_		_		_		_
		loam, loamy	_		_		_		_		_
		fine sand	_		_		_				_
	40-66	Fine sandy	SC-SM		A-2-4,	, A-4	0	9-0	85-100 80-100	80-100	45
	_	loam, sandy	_		_		_		_		_
		loam	_		_		_		_		_
	08-99	Fine sandy	SC-SM		A-2-4	A-2-4, A-4	0	9-0	85-100 80-100	80-100	45
		loam, sandy	_		_						_
	_	loam	_		_		_		_		_
		_	_		_						

Table 16. -- Engineering Index Properties -- Continued

Man symbol			Classif	Classification	Fragi	Fragments	Per	Percentage p	e p
and soil name	1 2 3 4 5 - —	8400			>10	3-10	2	0	
			Unified	AASHTO	inches	inches inches	4	10	_
	H.				Pct	Pct			
146B:									
Munising, stony	0-1	Highly	PT	A-8	0	0	100	100	_
	_	decomposed			_	_	_		_
	_	plant material			_				_
	1-2	Sandy loam,	SM	A-4, A-2-4	0-3	8-0	90-100	85-95	40
	_	loamy sand,		_	_				_
	_	fine sandy		_	_				_
	_	loam			_				_
	2-10	Loamy sand,	SM	A-2-4	0-3	8-0	86-98	83-98	62
	_	fine sandy		_	_				_
	_	loam, sandy			_				_
		loam	_	_	_				_
	10-14	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy		_					_
	_	loam			_	_	_		
	14-22	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
		loam, sandy			_	_	_		_
		loam			_	_	_		_
	22-49	Fine sandy	SC-SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	40
		loam, loamy			_	_	_		_
		sand, sandy			_	_	_		_
	_	loam, loamy			_				_
		fine sand	_	_	_				_
	49-63	Fine sandy	SC, SC-SM	A-2-4, A-4,	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy		A-6	_				_
	_	clay loam,			_	_	_		_
		sandy loam			_	_	_		_
	63-80	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
	_	loam, sandy			_				_
		loam			_				_
	_	_	_		_				

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Frag	Fragments	Per	Percentage p	Q
Map symbol	Depth	USDA texture					<u></u>	sieve numb	quir
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	H				Pct	Pct			
146B:									
Skanee, stony	0-2	Highly	PT	A-8	0	0	100	100	_
		decomposed		_	_				
_		plant material		_	_	_			
_	2-8	Cobbly fine	SM	A-2-4, A-4	0-3	0-24	85-100	85-100   80-100	40
_		sandy loam,		_	_	_			
_		fine sandy		_	_	_			
		loam, loamy		_	_	_			
		sand, sandy		_	_	_			
_		loam		_	_	_	_		
_	8-14	Fine sandy	SM	A-2-4, A-4	0-3	0-24	85-100	85-100   80-100	50
		loam, sandy		_	_	_			
_		loam, cobbly			_	_	_	_	
_		fine sandy			_	_		_	
		loam		_	_	_			
_	14-31	Fine sandy	SM	A-2-4, A-4	0-3	0-15	90-100	90-100 85-100	40
_		loam, loamy			_	_		_	
_		sand, sandy			_	_	_		
_		loam		_	_	_	_		
	31-42	Fine sandy	SC, SC-SM	A-2-4, A-4,	0-3	0-15	90-100 85-95	85-95	50
		loam, sandy		A-6	_	_			
_		clay loam,			_			_	
_		sandy loam			_			_	
	42-80	Fine sandy	SM	A-2-4, A-4	0-3	0-15	90-100 85-95	85-95	50
_		loam, sandy			_	_		_	
_		loam			_	_	_	_	
					_	_			

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragments	ents	Per	Percentage p	g é
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	uI —				Pct	Pct			
147A: Skanee, verv									
	0-2	Highly	PT	A-8	0	0	100	100	'
		decomposed			_		_	_	
	2-8		SM	A-2-4, A-4	0-3	0-24	85-100 80-100	80-100	40
		sandy loam,							
		Ω							
		sand, sandy							
	0	Todam Todam	70	, ,	٠ د			000	L
	# T - 0		E 0 _		2 -	14	00T-C0	00T-00	00
		loam, sandy							
		Ø							
		loam							
	14-31	Fine sandy	SM	A-2-4, A-4	0-3	0-15	90-100 85-100	85-100	40
		loam, loamy			_				
		sand, sandy			_				
	_	loam			_		_	_	
	31-42	Fine sandy	SC, SC-SM	A-2-4, A-4,	0-3	0-15	90-100 85-95	85-95	50
		loam, sandy							
	_	clay loam,			_			_	
		sandy loam			_		_	_	
	42-80	Fine sandy	SM	A-2-4, A-4	0-3	0-15	90-100	85-95	50
		loam, sandy			_		_	_	
		loam							
Gav. very stony	0 - 4	Mick	Τd	8-8	0	c	100	100	-
	4-7	Fine sandy	SM	A-2-4, A-4	0-24	0-15	75-100 70-100		35
		loam, loamy							
	<u></u>	sand, mucky							
		sandy loam,							
	7-11	Sandy loam,	SM	A-2-4, A-4	0-24	0-15	75-100 70-100	70-100	35
		cobbly sandy							
		loam, loamy							
					_				
	11-16	Sandy loam,	SM, SC	A-2-4, A-4,	8-0	8-0	85-100 80-100	80-100	50
	_	sandy clay		A-6					
	_	loam, fine						_	
		sandy loam							
	16-80		SM	A-2, A-4	8-0	8-0	85-100	85-100 80-100	45
	_	_			_		_	_	

Table 16.--Engineering Index Properties--Continued

			Classification	ication	Frag	Fragments	Per	Percentage p	Ω
Map symbol	Depth	USDA texture			0	3-10	oı	ieve m	qur
			Uni fied	AASHTO	inches		4	10	
	H				Pot	Pct			
148B: Shoepac	0-2	Highly	ЪŢ	A-8	0	0	100	100	
		decomposed   plant material							
	2-6	Silt loam, fine   ML,	ML, SM	A-4	0-3	0-15	85-100	80-100	50
		sandy loam							
	6-12	Fine sandy loam		A-4	0-3	0-15	85-100	80-95	55
	12-23		SM	A-2-4	0-3	0-15		80-95	35
	23-33	Loamy sand,	SM	A-2-4	0-3	0-15	90-100	85-95	35
		loam							
	33-53	Fine sandy	SC, SC-SM	A-6, A-4	0-3	0-15	90-100	85-95	55
		loam, sandy							
_					_		_		
_	53-80	Gravelly fine	SM	A-4	0-3	0-15	10-85	65-80	40
		sandy loam,							
		gravelly sandy							
		Loam							
Ensley	0 - 5	Muck	PT	A-8	0	0	100	100	Т
_	5-7	Mucky loam,	SM, ML	A-4, A-2-4	0 - 4	0-7	90-100	85-100	50
_		mucky fine		_	_		_		
_		mucky sandy							
	7-19	Fine sandy	ML, SM	A-4, A-2-4	0 - 4	0-7	90-100	85-100	50
		loam, sandy							
_		loam, loam					_		_
	19-80	Gravelly fine	SM	A-4	0 - 4	0-15	65-85	08-09	45
		sandy Loam							
	(		;		. — -				
Zeba, very stony	0-2	Sandy Loam,	N.W.	A-Z-4, A-4	o 	07-0	00T-08	00T-9/	4 7
		sandy loam							
	2-5	Sandy loam,	SM	A-4, A-2-4	0	0-20	80-100	75-100	45
		cobbly fine							
						6	0	7	
	0 T - 0	sandy loam.	MQ.	4-8 '4-7-8	> 	0 7 - 0	001-00	00T-6/	4. U
	13-33		SM	A-2-4, A-4	0	0-15	85-100	80-95	35
_									
		loam, loamy							
	;	sand							
	33-80	Unweathered   bedrock	!	:	:	:		-	1
									•

Table 16.--Engineering Index Properties--Continued

Man symbol	Depth	   USDA texture	Classif	Classification	Fragments	nents	Per	Percentage p	d e
and soil name	1				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	且				Pct	Pct			
155A:									
Jacobsville,	ш С	10.00	E	o 			-	-	-
Among Ama	n a	mach.	7.7	A C K	0	2	100   100	- CO C	7 L
	0		E o	F-7-4 'F-4	0	000	001-67		n n
		fine sandy		_			_		
		loam		_			_		
	9-23		SM	A-2-4, A-4	8-0	0-30	75-100   70-100	70-100	40
		sandy loam,							
		loam, sandy							
		loam			_	_	_	_	
	23-36	Fine sandy	SM	A-2-4, A-4	8-0	8-0	95-100   90-100	90-100	50
		loam, sandy			_	_	_	_	
		loam				_	_	_	
	36-80	Unweathered	-	-	-	-	-	:	1
		bedrock							
1578.									
10.00		114 243	E	o					
Keade	0 - 4	highiy   decomposed	H	χ- <del>- Δ</del>	>	 -	000	0 T	ı
		plant material							
	4-7	Silt loam, fine ML,	ML, SM	A-4	0-3	0-11	85-100 80-100	80-100	50
		sandy loam				_	_	_	
	7-9	Loam, fine	ML, SM	A-4	0-3	0-11	85-100   80-100	80-100	50
	,	sandy loam							i
	9-T5	Silt loam, fine ML,	ML, SM	A-4	۶-0 - ع	TT-0	001-08 001-58	00T-08	20
	15-20	sandy Loam	¥	4-6 4-6-4	7	11	85-100 80-100	001-08	,
	1	loam loamy			)	1			)
		fine sand							
	20-28	Fine sandy	N.	A-4 A-2-4	0-3	7-17	80-95	75-90	20
		loam, gravelly			) )	)		9	)
		02							
		loam							
	28-80	Unweathered	-	:	-	-	-	!	1
		bedrock			_		_		
		_		_			_	_	_

Table 16.--Engineering Index Properties--Continued

1.0   1.0		1		Classif	Classification	Fragn	Fragments	Per	Percentage p	η 1
In   Muck   A-8   December   Incompact	map symbol and soil name	Depth	USDA texture			>10	3-10		leve n	QIII.
11.1   Muck   PT   A-8   0   0   0   100				Unified	AASHTO	inches	inches	4	10	
1.11   Mucky loam,   ML, SC-SM   A-4   0   0   100		u.				Pct	Pct			
1.1.1   Mucky leam,   Min, SC-SM   A-4   0   0   95-100   85-100	157B:	-		E	o <u>_</u>	-	c	, , , , , , , , , , , , , , , , , , ,	5	
14-17   Fine sandy   ML, SC-SM   A-4   0   0   95-100   85-100   19-100	Natura	11-14	Mucky loam,		A-4	0	0	95-100	85-100	
14-17   Pine sandy   ML, SC-SM   A-4   0   0   95-100   85-100     17-19   Pine sandy   ML, SC-SM   A-4   0   0   95-100   85-100     19-24   Pine sandy   SC-SM   ML   A-4   0   0   0   95-100   85-100     19-24   Pine sandy   SC-SM   ML   A-4   0   0   0   95-100   85-100     24-80   Bedrock			loam, fine							
17-19   Fine sandy   NL, SC-SM, ML   A-4   0   0   0   55-100   55-100		14-17	Fine sandy		A - 4	c	c	95-100	85-100	7.0
17-19   Fine sandy   ML, SC-SM, ML   A-4   0   0   95-100   85-100		1	loam, loam		· 	· 	•	9	1	)
19-24   Fine sandy   SC-SM, ML   A-4   0   0-3   95-100   75-100	-	17-19	Fine sandy		A-4	0	0	95-100	85-100	_
19-24   Fine sandy   SC-SM, ML   A-4   0   0-3   95-100   75-100	_		loam, loam		_	_		_		_
Standy loam   Gravelly file   Sandy loam   Standy dy loam   Standy loa		19-24	Fine sandy	SC-SM, ML	A-4	0	0-3	95-100	75-100	
sing,    24-80   Bedrock			Loam, Loam,							
sing, sected,  ny			sandy loam							
sected,  ny		24-80	Bedrock	;		-	;	-	;	'
setted,  ny  loamposed   1-2   Highly   PT   A-8   0   0   100   100     1-2   Sandy loam,   SM   A-4, A-2-4   0-3   0-8   90-100   85-95     1-2   Sandy loam,   SM   A-2-4   0-3   0-8   86-98   83-98     1-2   Loam sandy   SM   A-2-4, A-4   0-3   0-8   86-98   83-98     1-3   Loam sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     1-4-2   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   90-100     1-4-2   Fine sandy   SC-S	158C:									
0-1 Highly PT A-8 0 0 0 100 100 100 100 100 12 Sandy loam, sandy   A-2-4, A-4, A-2-4 0-3 0-8 90-100 85-95   A-2-49 0-3 0-3 0-8 90-100 85-95   A-2-49 0-3 0-3 0-3 0-3 0-3 0-3 0-3 0-3 0-3 0-3	Munising, dissected.		· <del></del>		- <del></del>					
decomposed         A-4, A-2-4         0-3         0-8         90-100         85-95           Sandy loam,         SM         A-4, A-2-4         0-3         0-8         90-100         85-95           Ioamy sandy         SM         A-2-4         0-3         0-8         86-98         83-98           fine sandy         SM         A-2-4         0-3         0-8         86-98         83-98           loam, sandy         SM         A-2-4, A-4         0-3         0-8         90-100         85-95           loam, sandy         SM         A-2-4, A-4         0-3         0-8         90-100         85-95           loam, sandy         SM         A-2-4, A-4         0-3         0-8         90-100         85-95           loam, sandy         SC-SM         A-2-4, A-4         0-3         0-8         90-100         85-95           loam, loamy         Sc, SC-SM         A-2-4, A-4         0-3         0-8         90-100         85-95           loam, sandy         SC, SC-SM         A-2-4, A-4         0-3         0-8         90-100         85-95           loam, sandy         SC, SC-SM         A-2-4, A-4         0-3         0-8         90-100         85-95 <t< td=""><td>stony</td><td>0-1</td><td>Highly</td><td>PT</td><td>A-8</td><td>0</td><td>0</td><td>100</td><td>100</td><td>'</td></t<>	stony	0-1	Highly	PT	A-8	0	0	100	100	'
Sandy loam,   SM   A-4, A-2-4   0-3   0-8   90-100   85-95     Loamy sand,   SM   A-2-4   0-3   0-8   86-98   83-98     Loamy sandy   SM   A-2-4, A-4   0-3   0-8   86-98   83-98     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, loamy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, loamy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, loamy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   B-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   B-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   B-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   B-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   B-2-4, A-4   0-3   0-8   90-100     Loam, sandy   SM   B-2-4, A-4   0-3   0-8			decomposed							
Fine sandy  Loamy sand,  fine sandy  Loamy sand,  fine sandy  loam, sandy  loam, sandy  loam, loamy  SC-SM  Fine sandy  SC-SM  Fine sandy  Loam, sandy  SC-SM  Fine sandy  SC-SM  A-2-4, A-4  C-3  C-8  C-8  C-9  C-9  C-9  C-9  C-9  C-9		,	plant material				c	7	L C	
fine sandy loam, sandy		7-T	Sanay Loam,	W.S.		ກ - ດ	8 - 0	00T-06	80-90	4 O
Loamy sand, SM A-2-4 0-3 0-8 86-98 83-98 fine sandy loam,										
Fine sandy   SM   A-2-4   O-3   O-8   86-98   83-98   10 am, sandy   SM   A-2-4, A-4   O-3   O-8   90-100   85-95   10 am, sandy   SM   A-2-4, A-4   O-3   O-8   90-100   85-95   10 am, sandy   SC-SM   A-2-4, A-4   O-3   O-8   90-100   85-95   10 am, loamy   SC-SM   A-2-4, A-4   O-3   O-8   90-100   85-95   10 am, sandy   SC, SC-SM   A-2-4, A-4,   O-3   O-8   90-100   85-95   10 am, sandy   SC, SC-SM   A-2-4, A-4,   O-3   O-8   90-100   85-95   10 am, sandy   SC, SC-SM   A-2-4, A-4,   O-3   O-8   90-100   85-95   10 am, sandy   SM   A-2-4, A-4,   O-3   O-8   90-100   85-95   10 am, sandy   SM   A-2-4, A-4   O-3   O-8   90-100   85-95   10 am, sandy   SM   SM   SM   SM   SM   SM   SM   S			loam							
fine sandy       loam, sandy         loam, sandy       A-2-4, A-4       0-3       0-8       90-100       85-95         loam, sandy       SM       A-2-4, A-4       0-3       0-8       90-100       85-95         loam, sandy       SC-SM       A-2-4, A-4       0-3       0-8       90-100       85-95         loam, loamy       SC-SM       A-2-4, A-4       0-3       0-8       90-100       85-95         loam, loamy       SC, SC-SM       A-2-4, A-4       0-3       0-8       90-100       85-95         loam, sandy       SC, SC-SM       A-2-4, A-4       0-3       0-8       90-100       85-95         loam, sandy       SC, SC-SM       A-2-4, A-4       0-3       0-8       90-100       85-95         loam, sandy       SM       A-2-4, A-4       0-3       0-8       90-100       85-95         loam, sandy       SM       A-2-4, A-4       0-3       0-8       90-100       85-95         loam, sandy       SM       A-2-4, A-4       0-3       0-8       90-100       85-95         loam, sandy       SM       A-2-4, A-4       0-3       0-8       90-100       85-95		2-10		SM	A-2-4	0-3	8-0	86-98	83-98	62
loam, sandy   SM			Ø			_				
Fine sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95										
loam, sandy   A-2-4, A-4   0-3   0-8   90-100   85-95   10-8   10		10-14	Loam Fine gandw	×		-	α-	90-100	9	T.
Joam   Prine sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, loamy   SC-SM   A-2-4, A-4,   0-3   0-8   90-100   85-95     loam, sandy   SC, SC-SM   A-2-4, A-4,   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4,   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4		# 	loam. sandv	5		) )	0	9	ה ה ה	)
Fine sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, loamy   SC-SM   A-2-4, A-4,   0-3   0-8   90-100   85-95     loam, sandy   SC, SC-SM   A-2-4, A-4,   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100     loam, sandy   SM   A-2-4, A-4										
loam, sandy		14-22	Fine sandy	SM		0-3	8-0	90-100	85	50
Loam   Fine sandy   SC-SM   A-2-4, A-4   0-3   0-8   90-100   85-95     Loam, loamy   Scandy   Scandy   A-2-4, A-4, A-4, A-4, A-4, A-4, A-4, A-6     Loam, sandy   A-2-4, A-4, A-4, A-4, A-4   B-100   85-95     Loam, sandy   A-2-4, A-4, A-4   B-3   B-100   85-95     Loam, sandy   SM   A-2-4, A-4   B-3   B-100   85-95     Loam, sandy   SM   A-2-4, A-4   B-3   B-100   85-95     Loam, sandy   SM   A-2-4, A-4   B-3   B-100   85-95     Loam, sandy   B-2-4, A-4   B-3   B-3   B-3     Loam   Loam   B-2-4, A-4   B-3   B-3     Loam   B-2-4, A-4   B-3   B-3     Loam   B-2-4, A-4   B-3   B-3     Loam   B-2-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3   B-3     Loam   B-3-4, A-4   B-3     Loam   B-3-4, A-4   B-3     Loam   B-3-4, A-4   B-3     Loam   B-3-4, A-4   B-3     Loam   B-3-4, A-4   B-3     Loam   B-3-4, A-4   B-3     Loam   B-3-4, A-4     sandy   Loam, sandy   Lo			loam						L	,
Sand, and   Sand, and   Sand, and   Sand, and   Sand, and   Sand, and   Sand, and   Sand, and   Sand, and   Sandy loam, sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy loam, sandy   Sandy   Sandy loam, sandy loam, sandy loam, sandy loam, sandy loam, sandy loam, sand		22-43	Fine sandy	SC		5-0	8 - 0	00T-06	85-95	4
Loam, loamy   Loam, loamy   Loam, loamy   Loam, sandy   SC, SC-SM   A-2-4, A-4,   0-3   0-8   90-100   85-95     Loam, sandy   A-6   A-6   A-7   A-4   A-7   A-7     Loam, sandy   A-2-4, A-4   A-7   A-7   A-7     Loam, sandy   SM   A-2-4, A-4   A-7   A-7     Loam, sandy   A-2-4, A-7   A-7   A-7     Loam, loam,										
fine sand Fine sandy   Fine sandy   SC, SC-SM   A-2-4, A-4,   0-3   0-8   90-100   85-95     loam, sandy   A-6										
Fine sandy   SC, SC-SM   A-2-4, A-4,   0-3   0-8   90-100   85-95     loam, sandy   A-6   A-6   B-6   B-6     clay loam, sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95     loam, sandy   SM   A-2-4, A-4   B-7   B-7     loam   B-7   B-7   B-7     loam   B-7   B-7   B-7     loam   B-7   B-7   B-7     loam   B-7   B-7   B-7     loam   B-7   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7   B-7     loam   B-7     loam   B-7		49-63	Fine sandy			0-3	8-0	90-100	85-95	50
clay loam,	_				A-6	_				
sandy loam	_		clay loam,		_	_		_		
Fine sandy   SM   A-2-4, A-4   0-3   0-8   90-100   85-95   10-am, sandy	_		sandy loam			_				
		63-80	Fine sandy	SM		0-3	8-0	90-100	85-95	20
Toam										
			Loam							

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragments	ents	Per	Percentage p sieve numb	d a
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	u				Pot	Pct			
158C: Abbaye,									
stony	0-2	Slightly	PT	A-8	0	0	100	100	1
•		decomposed							
		plant material							
	2-4	Sandy loam,	SM	A-4, A-2-4	0-1	9-0	85-100 80-100	80-100	45
-		loamy sand,							
		fine sandy							
		loam, loamy							
		fine sand			_		_	_	
	4-13	Fine sandy	SM	A-2-4	0-1	9-0	84-100   76-100	$\overline{}$	58
		loam, loamy						_	
		sand, sandy				_		_	
		loam, loamy							
		U,							
	13-25	Fine sandy	SM	A-2-4, A-4	0-1	9-0	85-100	5-100 80-100	45
		loam, sandy				-			
						-		-	
	25-32	Fine sandy	SC-SM	A-2-4, A-4	0-1	0-85	90-100 80-100	80-100	45
		loam, loamy							
		sand, sandy			_			_	
		loam, loamy		_	_	_		_	
		fine sand				_		_	
	32-80	Unweathered	-	:	:	:	:	1	'
		bedrock					_	_	
160B:									
Paquin	0-2	Moderately	PT	A-8	0	0	100	100	1
		decombosed						_	
		plant material							
	2-12	Sand, fine sand	SP-SM, SM	A-2-4, A-3	_ o	0	95-100	90-100	50
	12-14	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	50
	14-17	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	90-100	50
	17-27	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	0	95-100	95-100   90-100	50
	27-34	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100 90-100	50
	34-80	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	50
		_			_	_		_	
Finch	0-1	Moderately	PT	A-8	0	0	100	100	1
		decomposed							
		plant material		_	_				
	1-11	Sand			0	0	95-100   90-100	90-100	45
	11-42	_	SP, SP-SM		0	0	95-100		45
	42-80	Fine sand, sand  SP-SM, SP	SP-SM, SP	A-2-4, A-3	0	0	95-100 90-100		50
_		_		_	_	_	_	_	

Table 16. -- Engineering Index Properties -- Continued

material mat	rial and crial	Unified  PT  GW-GM, SM  GW-GM, SM	A-8 A-1 A-8 A-2 A-8	>10   >10   Pct	>10 3-10 inches inches Pct Pct	4	10	$\lceil \mid_{-} \rceil$	
owdog, stony 0-2 Highly decomposed plant mate and composed plant mate sand, extremely channery sand, extremely channery sand, extremely decomposed plant mate sand, very channers sand, very stony sandy loan sandy loan sandy loan sandy loan very graver sandy loan very graver sandy loan s	rial and crial	Unified  I-GM     GM, SM	AAASE	inches Pat	inches	4	10	_	
In	rial rial ry		. 4-	ρ ο ο υ t	Pct	_	_	-[	
owdog, stony   0-2   Highly   decomposed	rial and ry	rial		4	o ¦	0	100	100	'_
2-32   Very channer     sand,   sand,     sand,   channery     channery   channery     bedrock   channery     channery   channery     channery   channery     channery   channer     channery   channer     channery   channer     channer   channer     decomposed   channer     channer   channer     decomposed   channer     channer   channer   channer     channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer     channer   channer   channer   channer     channer   channer   channer   channer     channer   channer   channer   channer     channer   channer   channer   channer   channer     channer	ry and rial ry ry ry ry		4-	o :					
sand,   cattemely     cattemely     decomposed     cattemely     decomposed     cattemely     decomposed	and rial ry	GM,	. 4-		25-55	25-55	20-50	0	
32-80   Unweatherers	and rial ry ry ry	GM,	. 4-	:					
32-80   Unweathereck	rial ry ry ry	GM,	. 4-	: :					
Deditock   Compose   Com	rial ry ry ry ry	-GM,	4-		-	-	:		
Note, stony  0-2	rial	-GM,	4-						
decomposec     2-4   Very channe     4-15   Very channe     15-80   Unweathered     15-80   Unweathe	rial  ry   ry			0	0	100	100		
2-4   Very channed   15-80   10-my sand   15-80   15									
4-15   Very channe     sand	гу 			0-15	10-15	35-55	30-50	10	
olay, very   4-15   very channe     15-80   Unweatherec     bedrock     bedrock     composed	гу				_	_	_	_	
15-80   Unweatherecolors	red	;	A-1	0-15	10-15	35-55	30-50		
15-80   Unwearnered	red	:							
olay, very  ny  0-2 Highly decomposed			! !	¦ 	:	<u> </u>	: 		
. very   0-2   Highly     decomposed     2-3   Very stony     3-8   Very stony     3-8   Very stony     3-8   Very stony     sandy loan     very grave     fine sandy     fine sandy     sandy loan									
0-2 Highly decomposed decomposed plant mate plant mate plant mate plant mate plant mate plant mate plant p	_			_				_	
aecomposee plant mate Very stony sandy loan Very stony sandy loan very grave sandy loan very cobbl fine sandy loan Very cobbl sandy loan very cobbl	Ed 7		A-8	0	0	100	100		
Very stony sandy loan sandy loan very grave sandy loan very grave sandy loan very cobbline sandy loan Very gravel sandy loan very cobbline sandy l	sed aterial								
sandy loan Very stony sandy loan Very grave sandy loan Very cobbl line Very gravel Sandy loan Very gravel	ony fine SM	i.	A-4	8-30	25-55	40-70	35-65	25	
Very stony sandy loan very grave sandy loan very cobbl fine sandy loam Very gravel sandy loan	.oam							_	
<del>&gt;</del>	ony fine GM,	I, SM	A-2-4, A-4	8-30	25-55	40-70	35-65	25	
<del>-</del>	avelly								
very   fine   loan   very   sand	oam,			_		_		_	
fine loan Very sanc	bbly.								
Very sand very	ndy								
sand	WE ALLOW	No.	A-2-4 A-4	08-80	25-55	40-70	35.65	2 7	
very cobbly				0	0	)   	) ) ) )	4	
	bbly								
fine sandy	ndy								
loam, very	rery			_			_	_	
stony fine	ine								
sandy loam	oam.		, ,	0	L .	1			
14-2/ Very graverry			F-7-W 'F-W	000	00-07	0 1 0 #	001	4	
very cobbly	bbly								
fine sandy	ındy				_		_	_	
Z/-80 Bearock		:	:	:	:	:	:		

Table 16.--Engineering Index Properties--Continued

			Classification	ication	Fragm	Fragments	Per	Percentage p	Q <sub>1</sub>
Map symbol	Depth	USDA texture						ieve n	qwr
and soil name			Unified	AASHTO	>10 inches	>10 3-10 inches	4	10	-
	H				Pct	Pct			
Waiska, very stony	0-1	Moderately	ЪТ	A-8	0	0	100	100	
		decomposed   plant material							
	1-4	Sand, cobbly	SP, SM, GP	A-2-4, A-3,	0	0-30	30-93	16-92	12
		loamy sand,		A-1					
		loamy sand							
	4-8	Very gravelly	SM, GP, SP,	A-1, A-2-4,	0	0-30	35-95	30-90	20
		coarse sand,	SP-SM	A-3	_				_
		very cobbly							
		gravelly sand							
	α α	Very grayelly	ר-מ מס מס מט	A-1 8-8	<u> </u>	0-30	25.20	30-75	1
	d d	coarse sand,	i		• •				)  -  -
		gravelly sand,							
		very gravelly				_			
_		sand	_		_	_			
	18-80	Very gravelly	SP-SM, SP, GP	GP A-1, A-3	0	0-30	15-80	10-75	- 2
		sand,							
		extremely							
		gravelly							
		gravelly sand							
166: Shandia	0-4-		E-O	α			001	0	
	4 - 2	Much Poss	· F	0 0	o c	· ·	0 0	0 0	0
	26-31	Weathered	:	; ;	-   -	· ¦	2 !	) i	)   
		bedrock							
	31-80	Unweathered	-	-	:	-	:	}	<u> </u>
		bedrock			_				
167.									
Skandia, stony	0 - 4	Mucky peat	PT	A-8	0	0	100	100	Т
	4-26	Muck	PT	A-8	0	0	100	100	90
_	26-31	Weathered	:	:	-	-	-	:	
		bedrock							
	31-80	Unweathered	-	:	:	:	:	:	1
		Dearock							

Table 16.--Engineering Index Properties--Continued

			Classification	ication	Fragn	Fragments	Per	Percentage p	Q <sub>1</sub>
Map symbol	Depth	USDA texture			0	3-10		sieve nu	dmr
			Uni fied	AASHTO	inches	inches inches	4	10	
	п				Pct	Pct			
167: Jacobsville,									
stony	0 - 5	Muck	PT		0	0	100		1 1
	5-9	Sandy loam,   fine sandv	WS.	A-4, A-2-4	8 - 0	0-30	75-100 70-100 		35
_		sand, cobbly			_	_	_	_	
		fine sandy							
	0 - 0 3	Loam	¥0	A - C - K	ď	0.5	75-100 70-100	70-100	4.0
	0 1 1 0		E 0		0	000	001-67		)  -  -
		loam, sandy							
		loam		,			, ,	0	L
	43-30	loam, sandv	ш <u>о</u>	T-W 'T-7-W	0	0	00T-C6	001-06-001-66	00
		loam							
	36-80	Unweathered	-	-		-	-	:	_
		bedrock							
170B:									
Chocolay, very	0-2	Highly	<u>-</u>	α - 4	c	c	100	00	_ '
Z.	1	decomposed	4	·	 	•	) )	9	
		plant material							
_	2-3	Very stony fine SM	SM	A-4	8-30	25-55	40-70	35-65	25
		sandy loam							
	3-8	Very stony fine GM,	GM, SM	A-2-4, A-4	8-30	25-55	40-70	35-65	25
		sandy loam,							
		sandy loam.							
		very cobbly							
		fine sandy		- —	_	_	_		
_		loam		_	_	_	_		
	8-14	Very gravelly	GM, SM	A-2-4, A-4	8-30	25-55	40-70	35-65	25
		sandy loam,							
		fine sandy							
		loam, very							
		stony fine			_				
_		sandy loam			_	_		_	
	14-27	Very gravelly	SM, GM	A-4, A-2-4	8-30	25-55	40-70	35-65	25
		sandy loam,							
		very cobbly							
		fine sandy							
_	27-80	- —	;	;	;	;	;	-	'
					- —				

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classification	ication	Frag	Fragments		Percentage p sieve numb	e p umb
and soil name	ı				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	п				Pct	Pct			
stony	0-2	Moderately	PT	A-8	0	0	100	100	
		decomposed			_		_		
	(	plant material		·		i c	L	0	7
	7 - 6	very gravelly   loamv sand	GW-GM, SW-SM,	- W- T	e - 0 - 3	8-72	35-65	30-60	)    -
	6-15	Extremely	GM, GW-GM	A-1	0-15	8-44	20-50	15-45	5
		gravelly loamy							
_		coarse sand,			_		_	_	
		extremely							
		gravelly sand,							
		very gravelly							
		coarse sand	, and	- -	-		, i	7	L
	T2-3T	EXTremely	МЭ-МЭ	T-W-	GT - 0	8 - 44	06-07	T5-45	ດ
		gravelly							
		verv gravelly							
		coarse sand							
	31-59	Gravelly sandy	SC-SM	A-4, A-2-4	0-15	0-44	50-90	45-85	35
		loam, gravelly							
		fine sandy							
		loam, very			_		_	_	
		cobbly loamy			_		_	_	
		fine sand,							
		gravelly loamy							
	0	rine sand					0		,
	59-80	Gravelly fine	WS.	A-4	0-3	8-15	70-85	65-80	40
		gravelly sandy							
		loam							
1720.									
Buckroe, very									
	0-2	Highly	PT	A-8	0	0	100	100	
		decomposed			_		_	_	
		plant material			_		_	_	
	2-4	Very channery	GW-GM, SM	A-2-4, A-1	0-15	10-15	35-55	30-50	10
		loamy sand					! !		
	4-T2	Very channery	GW-GM, SM	- W- T	0-15	T-0T	35-55	30-50	ი
	15-80	Unweathered	;	;	:	;	:	-	_ '
		bedrock							
Rock outcrop.									
_				_	_		_	_	_

Table 16 --- Engineering Index Properties--Continued

				100000000000000000000000000000000000000	5	1	6	1	1
Map symbol	Depth	USDA texture	7.100.00.00.00.00.00.00.00.00.00.00.00.00		150 H	וופדו כמ	j	sieve numb	dmu dmb
and soil name	•				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	uI				Pct	Pct			
172F:									
Buckroe, very					_				
bouldery	0-2	Highly	PT	A-8	0	0	100	100	_
		decomposed		_	_	_	_	_	_
		plant material		_	_	_	_	_	
	2-4	Very channery	GW-GM, SM	A-2-4, A-1	0-15	10-15	35-55	30-20	10
		loamy sand		_	_		_	_	
	4-15	Very channery	GW-GM, SM	A-1	0-15	10-15	35-55	30-50	5
		sand		_	_		_	_	
	15-80	Unweathered	-	:	:	-	-	-	_
		bedrock				_		_	
					_	_		_	
Rock outcrop.									
176B:									
Croswell	0-2	Moderately	PT		0	0	100	100	_
		decomposed	_		_		_	_	_
		plant material		_	_	_	_	_	
	2-6	Sand	SM, SP-SM	A-2-4, A-3	- 0 -	0-5	90-100	90-100   85-100   40	40
	6-15	Sand	SM, SP-SM	A-2-4, A-3	o _	0-2	90-100	90-100   85-100   40	40
	15-22	Sand	SM, SP-SM	A-2-4, A-3	0	0-5	90-100	90-100   85-100   40	40
	22-80	Sand	SM, SP-SM	A-2-4, A-3	0	0-2	90-100	85-100 40	40
		_			_	_		_	_
Kinross	0-3	Muck	PT	A-8	°	0	100	100	П
	3-14	Sand	SP-SM, SM	A-2-4, A-3	- 0 -	0	100	90-100	50
	14-22	Sand	SP-SM	A-3	0	0	100	90-100 50	50
	22-35	Sand	SP-SM	A-3	0	0	100	90-100 50	50
	35-80	Sand, fine sand  SP-SM	SP-SM	A-3	0	0	100	90-100 50	50
			_	_	_		_	_	_

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragi	Fragments	Per	Percentage p sieve numb	dur dur
and soil name			7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	E	^10			,	
			Unitied	AASHTO	inches	н.	4	10	
	H				Pat	Pct			
181E:									
Frohling,									
stony	0-1	Moderately	PT	A-8	0	0	100	100	1
_		decomposed				_			
		plant material		. —		_			
_	1-2	Fine sandy loam	SM	A-4	0	8-0	85-100	80-100	55
_	2-7	Loamy sand,	SM	A-4, A-2-4	0	8-0	85-100	85-100   80-100	35
_		sandy loam,				_			
		loamy fine			_	_			
_		sand, fine		_	_	_			
_		sandy loam			_				
_	7-9	Fine sandy loam	SM	A-4	0	8-0	85-100	85-100 80-100	55
_	9-16	Fine sandy loam	SM	A-4	0	8-0	85-100	85-100 80-100	50
_	16-34	Fine sandy	SM	A-4, A-2-4	0	8-0	85-100	85-100 80-100	35
_		loam, sandy			_				
				. —		_			
_		sand, loamy		_	_				
_		fine sand		_	_				
_	34-80	Fine sandy	SM	A-2-4, A-4	0	8-0	85-100	85-100 80-100	35
		loam, sandy							
		loam, loamy		. —		_			
		sand, loamy							
		fine sand							
Tokiahok									
dissected,									
stony	0-2	Highly	PT	A-8	0	0	100	100	'
_		decomposed			_	_			
_		plant material		_	_	_			
_	2-11	Loamy fine sand	SM	A-2-4	0 - 4	0-2	85-100	80-95	75
_	11-15		SM, SP-SM	A-2-4, A-3	0-3	0-2	85-100	80-95	35
	15-24	Sand, loamy	SM, SP-SM	A-2-4, A-3	0-3	0-2	85-100 80-95	80-95	35
	24-59		SM	A-4, A-2-4	0-3	0-5	85-100 80-95	80-95	45
	08.0	Sandy loam	W C.W.	A-2-4 A-4	م ا ا	ر ا	85-100 80-95	20-95	4 7
		7		: : :	) - —	)	1	)	}

Table 16. -- Engineering Index Properties -- Continued

	:		Classification	cation	Fragi	Fragments	Per	Percentage p	Δ,
Map symbol	Depth	USDA texture			>10	3-10	o <sub>2</sub>	greve n	quin
		-	Unified	AASHTO	inches	-11	4	10	_
	п				Pot	Pct			
185B:									
McMaster	0-2	Highly	PT	A-8	0	0	100	100	
		decomposed							
	2 - 4	Cobbly sandy	SM	A-2-4	0-3	10-30	70-95	65-90	35
									_
	4 - 8	Cobbly loamy	SM	A-2-4	0-3	10-30	70-95	65-90	30
_	8-11	Cobbly sandy	SM	A-2-4	0 - 3	10-30	70-95	65-90	35
		loam			_				_
	11-24	Very gravelly	GW-GM, SW-SM, A-1	A-1	0 - 3	8-25	35-65	30-60	10
		loamy sand							_
-	24-39	Very gravelly	GM, GW-GM	A-1	0-3	8-30	35-55	30-50	10
	0	coarse sand		,		, ,	L	0	
	39-80	Extremely	GW, GW-GM	A-1	0-3	15-30	25-35	20-30	٠ -
		gravelly							
_		coarse sand							
186B:									
Chatham, stony	0-1	Highly	PT	A-8	0	0	100	100	_
		decomposed			_			_	_
		plant material			_	_		_	_
	1-6	Sandy loam,	SM	A-2, A-4	0-3	0-15	70-100	65-95	45
		fine sandy							
	6-20	loam  Sandy loam,	MS	A-4, A-2-4	0 - 3	0-15	70-100 65-95	65-95	45
		gravelly fine							
		sandy loam			_	_			_
	20-39	Sandy loam,	SM	A-4	3-30	3-30	70-95	65-90	45
		channery fine			_			_	_
		sandy loam,			_			_	_
		flaggy fine			_				_
		sandy loam							
	39-80	Extremely	GM, SM	A-4, A-2-4	15-50	15-45	30-80	25-75	10
		sanay roam,							
		losmy sand							
_		Todaiiy saiid							
=					_	_		_	_

Table 16. -- Engineering Index Properties -- Continued

The part of the	L'oriente de la company	1 1 1 1 1 1		Classif	Classification	Fragi	Fragments	Per	Percentage p	е Б
In   Duiffied   AASHTO   Inches   Inches		nebru				>10	3-10	n i	D > D	
In   Highly   PT   A-8   0   0   0   0   0   0   0   0   0				Unified	AASHTO	inches	inches	4	10	
1-6   Highly   PT   A-8   0   0   0   0   0   0   0   0   0		H				Pct	Pct			
1-6   Sandy loam   SM   A-2, A-4   0-3   0-15     1-6   Sandy loam   SM   A-2, A-4   0-3   0-15     1-6   Sandy loam   SM   A-4, A-2-4   0-3   0-15     1-8   Sandy loam   SM   A-4, A-2-4   0-3   0-15     20-39   Sandy loam   SM   A-4, A-2-4   0-3   0-15     20-39   Sandy loam   SM   A-4, A-2-4   0-3   0-15     1-8   Sandy loam   SM   A-4, A-2-4   0-3   0-15     1-9   Sandy loam   SM   A-4, A-2-4   0-3   0-15     1-9   Sandy loam   SM   A-4, A-2-4   15-50   15-45     1-9   Sandy loam   SM   A-4, A-2-4   15-50   15-45     1-9   Sandy loam   SM   A-4, A-2-4   15-50   15-45     1-9   Sandy loam   SM   A-4, A-2-4   0-3   0-11     1-1   Sandy loam   SM   A-4   0-3   0-11     1-2   Sandy loam   SM   A-4   0-3   0-11     1-2   Sandy loam   SM   A-4, A-2-4   0-3   0-11     1-2   Sandy loam   SM   A-4, A-2-4   0-3   0-11     1-2   Sandy loam   Sm   A-4, A-2-4   0-3   0-11     1-2   Sandy loam   Sm   A-4, A-2-4   0-3   0-11     1-2   Sandy loam   Sm   A-4, A-2-4   0-3   0-11     1-3   Sandy loam   Sm   A-4, A-2-4   0-3   0-11     1-3   Sandy loam   Sm   A-4, A-2-4   0-3   0-11     1-4   Silt loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   A-4, A-2-4   0-3   0-11     1-5   Sint loam   Sm   Sm   Sm   Sm   Sm   Sm   Sm	186D:									
1-6   Sandy loam,   SM   A-2, A-4   0-3   0-15		0-1	Highly	PT	A-8	o 	0	100	100	
1-6   Sandy loam,   SM   A-2, A-4   0-3   0-15     fine sandy loam,   SM   A-4, A-2-4   0-3   0-15     sandy loam,   SM   A-4, A-2-4   0-3   0-15     sandy loam,   SM   A-4, A-2-4   0-3   0-15     sandy loam,   SM   A-4, A-2-4   15-50   15-45     sandy loam,   SM   A-4, A-2-4   15-50   15-45     sandy loam,   SM   A-4, A-2-4   15-50   15-45     sandy loam,   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   0-3   0-11     sandy loam   SM   A-4   A-4   0			plant material							
fine sandy   SM   A-4, A-2-4   0-3   0-15     gravelly fine   sandy loam   SM   A-4, A-2-4   0-3   0-15     gravelly fine   sandy loam   SM   A-4, A-2-4   3-30   3-30     channery fine   sandy loam   Sand		1-6	Sandy loam.	W.S.		0-3	0-15	70-100	65-95	4.5
10am   6-20   Sandy loam   A-4, A-2-4   0-3   0-15     sandy loam   SM   A-4, A-2-4   0-3   0-15     sandy loam   SM   A-4   3-30   3-30     sandy loam   SM   A-4   3-30   3-30     sandy loam   SM   A-4, A-2-4   15-50   15-45     sandy loam   PT   A-8   0   0     sandy loam   PT   A-8   0-3   0-11     4-7   Silt loam   Eine   ML, SM   A-4   0-3   0-11     4-7   Silt loam   Eine   ML, SM   A-4   0-3   0-11     5-8   Silt loam   SM   A-4   0-3   0-11     5-9   Sandy loam   SM   A-4   0-3   0-11     5-15   Silt loam   SM   A-4   0-3   0-11     5-16   Silt loam   SM   A-4   0-3   0-11     5-17   Silt loam   SM   A-4   0-3   0-11     5-18   Silt loam   SM   A-4   0-3   3-15     5-19   Sandy loam   SM   A-4   0-3   3-15     5-10   Silt loam   SM   A-4   0-3   3-15     5-10   Silt sandy   SM   A-4   A-2-4   0-3   3-15     5-10   Silt sandy   SM   A-4	_	) 	fine sandy	i		) - - —				
6-20   Sandy loam,   SM   A-4, A-2-4   0-3   0-15     Gravelly fine   Sandy loam,   SM   A-4, A-2-4   0-3   0-15     Sandy loam,   SM   A-4   3-30   3-30     Sandy loam,   SM   A-4, A-2-4   15-50   15-45     I laggy fine   Sandy loam,   SM   A-4, A-2-4   15-50   15-45     I loamy sand   PT   A-8   0-3   0-11     A-7   Silt loam, fine   ML, SM   A-4   0-3   0-11     Sandy loam   ML, SM   A-4   0-3   0-11     Sandy loam   ML, SM   A-4   0-3   0-11     Sandy loam   ML, SM   A-4   0-3   0-11     Sandy loam   Sandy loam   SM   A-4   0-3   0-11     Sandy loam   Sandy loam   SM   A-4   0-3   3-15     I loam, gravelly   SM   A-4, A-2-4   0-3   3-15     I loam gravelly   SM   A-4, A-2-4   0-3   3-15     I loam gravelly   SM   A-4, A-2-4   0-3   3-15     I loam gravelly   SM   A-4, A-2-4   0-3   3-15     I loam gravelly   SM   A-4, A-2-4   0-3   3-15     I loam gravelly   SM   A-4, A-2-4   0-3   3-15     I loam gravelly   SM   A-4, A-2-4   0-3   3-15     I loam bedrock   Dinweathered	_		loam							
Sandy loam   SM   A-4   3-30   3-30		6-20	Sandy loam,	SM		0-3	0-15	70-100	65-95	45
20.39   Sandy loam,   SM   A-4   3-30   3-30   sandy loam,   flaggy fine   sandy loam,   flaggy fine   sandy loam,   flaggy fine   sandy loam,   very channery			gravelly fine							
20-39   Sandy loam,   SM   A-4   3-30   3-30   3-30   3-30   1-4   1-4   3-30   3-30   3-30   1-4			sandy loam		-	_				
Channery fine   Sandy loam,   Flaggy fine   Sandy loam,   Flaggy fine   Sandy loam,   Flaggy fine   Sandy loam,   Sandy loam		20-39	Sandy loam,	SM	A-4	3-30	3-30	70-95	65-90	45
Filagyy fine   Sandy loam,   Sandy loam,   Etlagyy fine   Sandy loam,			channery fine		_	_		_		
Flaggy fine   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy loam   Sandy   Sandy loam   Sandy l			sandy loam,		_			_		
39-80   Extremely   GM, SM   A-4, A-2-4   15-50   15-45   15			flaggy fine		_	_	_			
39-80   Extremelly   GM, SM   A-4, A-2-4   15-50   15-45     sandy loam,   sandy loam   A-4   A-2   15-50   15-45     very channery			sandy loam		_	_				
Flaggy fine   sandy loam,   very channery		39-80	Extremely			15-50	15-45	30-80	25-75	10
Sandy loam,   Sandy loam,   Very channery   Very channery			flaggy fine		_	_		_		
very channery   loamy sand   loamy gravelly   loamy gravely			very channery		_	_		_		
15			loamy sand							
	187B:									
decomposed	Reade	0 - 4	Highly	PT	A-8	0	0	100	100	_
Plant material   Silt loam, fine   MI, SM   A-4   0-3   0-11     Sandy loam			decomposed		-	_				
Silt loam, fine   MI, SM   A-4   0-3   0-11     sandy loam   Incom, fine   MI, SM   A-4   0-3   0-11     sandy loam   Incom, fine   MI, SM   A-4   0-3   0-11     sandy loam   Incom, fine   Incom, loam, loam   Incom, ly   Incom, gravel			plant material		_	_	_			
Sandy loam   Substitute   ML, SM   A-4   0-3   0-11		4-7	Silt loam, fine		A-4	0-3	0-11	85-100	80-100	50
Loam, fine   MI, SM   A-4   0-3   0-11     sandy loam		1	loam						,	
Sandy loam   Silt loam, fine   ML, SM   A-4   0-3   0-11     Isandy loam   A-2-4, A-4   0-3   0-11     Ioam, loamy   SM   A-4, A-2-4   0-3   3-15     Ioam, gravelly   SM   A-4, A-2-4   0-3   3-15     Ioam   Unweathered         bedrock           Silt   Silt   A-4, A-2-4   0-3   3-15     Ioam   Unweathered         bedrock           Silt   Silt   A-2-4, A-2-4   0-3   3-15     Silt   A-4, A-2-4		6-7	tine		A-4	0-3	0-11	85-100	80-T00	20
Fine sandy   SM   A-2-4, A-4   0-3   0-11     Loam, loamy   SM   A-2-4, A-4   0-3   0-11     Fine sandy   SM   A-4, A-2-4   0-3   3-15     Fine sandy   SM   A-4, A-2-4   0-3   3-15     Fine sandy   CM   A		9-15			A-4	0-3	0-11	85-100	80-100	50
Fine sandy   SM   A-2-4, A-4   0-3   0-11     Loam, Loamy			sandy loam							
loam, loamy		15-20	Fine sandy	SM		0-3	0-11	85-100	80-100	50
fine sand			loam, loamy			_		_		_
Fine sandy   SM   A-4, A-2-4   0-3   3-15   80-95			fine sand		_			_		
loam, gravelly fine sandy loam Unweathered		20-28	-	SM		0-3	3-15		75-90	50
fine sandy loam Unweathered	-									
Loam Unweathered bedrock			fine sandy							
Unweathered bedrock			Loam							
bedrock		28-80	Unweathered	-	:	:	:	-	:	_
			bedrock							

Table 16. -- Engineering Index Properties -- Continued

			Classification	ication	Frag	Fragments	Pe	Percentage p	Q .
Map symbol	Depth	USDA texture			-			sieve n	qwn
and soil name			Unified	AASHTO	>10 inches	>10 3-10 inches inches	4	10	_
	H				Pct	Pct			
188B:									
Eben, stony	9-0	Very cobbly	SM _	A-2-4	8-20	20-30	50-70	45-65	35
	6-22	Very cobbly	SM	A-2-4	8-20	20-30	50-70	45-65	35
	22-25	sandy loam	N	- K	000	00-30	7.0	7 2 2	~
	0 4 4 5	loamy sand	탈 <u></u>	# 1 7 1 4	0	0 0 0	0	n n n	<u> </u>
	25-35	Extremely	GW-GM, GM	A-1	8-20	15-30	15-40	10-35	2
		gravelly loamy		· <u>—</u> _		· <u></u>			
	L	coarse sand		,		L	L -	0	
	35-80	Extremely   gravelly	GM, GW-GM	T - <del>V</del>	8 - 70	T2-30	T2-35	T0-30	ი ი
		coarse sand							
188D:									
Eben, stony	9-0	Very cobbly	SM	A-2-4	8-20	20-30	50-70	45-65	35
_		sandy loam		_	_	_	_	_	_
	6-22	Very cobbly	SM	A-2-4	8-20	20-30	50-70	45-65	35
		sandy loam							
	22-25	Very cobbly	SM	A-2-4	8-20	20-30	50-70	45-65	30
	L	loamy sand				, i			
	25-35	Extremely	GW-GM, GM	A-1	8-20	15-30	15-40	10-35	<u>۔</u> ۔
		gravelly loamy							
		coarse sand							
	35-80	Extremely	GM, GW-GM	A-1	8-20	15-30	15-35	10-30	2
		gravelly							
		coarse sand							
188E:									
Eben, stony	9-0	Very cobbly	SM	A-2-4	8-20	20-30	50-70	45-65	35
		sandy loam			_	_	_	_	_
	6-22	Very cobbly	SM	A-2-4	8-20	20-30	50-70	45-65	35
_		sandy loam		_	_	_	_	_	_
_	22-25	Very cobbly	SM	A-2-4	8-20	20-30	20-10	45-65	30
		loamy sand							_
	25-35	Extremely	GW-GM, GM	A-1	8-20	15-30	15-40	10-35	2
		gravelly loamy							
		coarse sand							
	35-80	Extremely	GM, GW-GM	A-1	8-20	15-30	15-35	10-30	
		gravelly							
		coarse sand							
_		_			_	_			

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classi	Classification	Fragments	nents	Per	Percentage p sieve numb	P P
and soil name	· - —				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	uI .				Pat	Pct			
91B: Ruse	0-7	Mucky silt	SM, ML	A-4, A-2-4	0	0-15	85-100	85-100 75-100	45
	7-11	Sandy loam,	ML, SM	A-2-4, A-4	0	0-15	85-100	75-100	45
		fine sandy   loam							
	11-15	Sandy loam,	SM, ML	A-2-4, A-4	0	0-15	85-100	75-100	45
		loam		-	_		_		
	15-80	Bedrock	:	:	:	-	:	-	1
Ensign	0-1	Slightly	PT	A-8	0	0	100	100	'
		decomposed							
	1-5	Gravelly sandy	SM, ML	A-2-4, A-4	0	0-30	60-100	50-100	30
							_		
	α I	sandy loam		A - C - A		0-30	100	001-02	3.0
	) -	loam, gravelly			· 		) H	9	)
		sandy loam,					_		
		silt loam			_		_	_	
	8-15	Fine sandy		A-2-4, A-4	0	0-30	001-09	60-100   50-100	30
		loam, gravelly							
		$\neg$							
	15-80	Unweathered	:	:	0	0-30	-	-	'
		bedrock							
.97B:	-		E	0		c	-		
on of the contract of the cont	N D	decomposed	1 4	0 4	 	>	9	9	
		plant material					_		
	2-6	Silt loam, fine ML,	ML, SM	A-4	0-3	0-15	85-100	80-100	50
		sandy loam				,			
	6-12	Fine sandy loam		A-4	0-3	0-15	85-100	80-95	55
	12-23		N S	A-2-4	n (	0 - I.5	85-100	20 - D C	3 5
	43-55	fine sandv	МC	*-7-W	n 	CT - D		000	o O
	33-53	Fine sandy	SC, SC-SM	A-6, A-4	0-3	0-15	90-100	85-95	55
		loam, sandy		. —	_		_		
	, ,	clay loam	į			L			,
	23-80	Gravelly ine	N.W.	A-4	າ - 0	GT-0	70-82	02-60	4
		gravelly sandy							
		loam							
	_	_		_	_		_	_	

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classif	Classification	Fragments	nents	Per	Percentage p	dm e
and soil name					>10	3-10			
			Unified	AASHTO	inches inches	inches	4	10	
	ä				Pot	Pct			
97B:									
renary	0-2	Silt loam,	SM, ML	A-4, A-2-4	0	0-5	90-100	90-100  85-100	50
		sandy loam,		_	_				
_		fine sandy		_	_				
_		loam, very			_	_			
		fine sandy		_	_				
		loam							
	2-6	Fine sandy	ML, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	55
_		loam, silt					_		
		loam, very		_	_				
		fine sandy		_	_				
		loam							
	6-12	Fine sandy	ML, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	55
_		loam, sandy		_	_				
_		loam, very		_	_				
_		fine sandy		_	_				
		loam							
	12-17	Fine sandy	ML, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	55
		loam, very		_	_				
		fine sandy		_	_				
_		loam					_		
	17-26	Sandy loam,	SM	A-4	0 - 4	8-0	90-100	85-95	40
		loamy sand		_	_				
	26-37	Sandy clay	SC, SM	A-6, A-4	0 - 4	8-0	90-100	85-95	55
		loam, fine			_	_	_		
		sandy loam			_	_	_		
	37-80	Sandy loam,	SM	A-4	0 - 4	0-20	70-95	65-90	40
		gravelly fine			_	_			
		sandy loam,			_	_	_		
		cobbly fine							
		sandy loam					-		

Table 16.--Engineering Index Properties--Continued

	:		Classi	Classification	Fragi	Fragments	Per	Percentage	Δ,
and soil name	nebru	OSDA cexcure			>10	3-10		sieve num	
			Unified	AASHTO	inches		4	10	
	ä				Pct	Pct			
198B:									
Shoepac	0-2	Highly	PT	A-8	0	0	100	100	<u>'</u>
		decomposed							
_		plant material			_		_		
	2-6	Silt loam, fine   ML,	ML, SM	A-4	0-3	0-15	85-100 80-100	80-100	50
_		sandy loam			_				
	6-12	Fine sandy loam	SM	A-4	0-3	0-15	85-100 80-95	80-95	55
_	12-23	Loamy sand	SM	A-2-4	0-3	0-15	85-100	80-95	35
_	23-33	Loamy sand,	SM	A-2-4	0-3	0-15	90-100 85-95	85-95	35
_		fine sandy			_				
_		loam		_					
_	33-53	Fine sandy	SC, SC-SM	A-6, A-4	0-3	0-15	90-100 85-95	85-95	55
_		loam, sandy		_	_				
_		clay loam		_	_				
	53-80	Gravelly fine	SM	A-4	0-3	0-15	70-85	65-80	40
_		sandy loam,		_	_				
		gravelly sandy			_		_		
		loam							
Reade	0 - 4	Highly	PT	A-8	0	0	100	100	' _
_		decomposed			_		_		
_		plant material			_		_		
_	4-7	Silt loam, fine ML,	ML, SM	A-4	0-3	0-11	85-100 80-100	80-100	50
_		sandy loam			_		_		
	7-9	Loam, fine	ML, SM	A-4	0-3	0-11	85-100 80-100	80-100	50
_	9-15	Silt loam, fine	ML, SM	A-4	0-3	0-11	85-100 80-100	80-100	50
		sandy loam			_		_		
_	15-20	Fine sandy	SM	A-2-4, A-4	0-3	0-11	85-100 80-100	80-100	50
_		loam, loamy							
_		fine sand		_					
	20-28	Fine sandy	SM	A-4, A-2-4	0-3	3-15	80-95	75-90	50
		loam, gravelly							
		loam							
	28-80	Unweathered	;	:	;	;	:	:	'
		bedrock							

Table 16.--Engineering Index Properties--Continued

and soil name		TISDA texture			10011	Fragments	Ъек	Percentage p	7 4
	•		Unified	AASHTO	>10	>10   3-10	4	10	
	r i				Pat	Pct			
200A:	c	7	E	- — <del>-</del>		c	6	6	
Charlevolx	0 - 7	decomposed	H	ν - <del>Υ</del>	> 	>	000	0 H	
		plant material							
	2-5	Silt loam	ML	A-4	0		90-100	85-100	75
	2-7			A-4	0		90-100 85-100 75	85-100	75
	7-12	Silt loam, fine SM,	SM, ML	A-4	o 	0-7	90-100	85-100	55
	12_16	sandy loam	<u> </u>	A - C - K		a c	001-00	001-38 001-00	n n
	1	loam, loamy	<u> </u>		· 	0	) H	9	
		fine sand		_					
	16-27	Cobbly fine	SM	A-4, A-2-4	0	8-15	06-08	75-85	50
		sandy loam,							
		cobbly loamy							
	27-80	Cobbly fine	SM	A-4	0-2	8-15	75-90	70-85	45
		sandy loam,			_				
		gravelly fine							
		sandy loam							
2	٠ ٦	- William	Εū	α -	c 	c	100	100	'
3	ם נ	Micky loam	CM MT.	A-4 A-7-4	 5 -	2 - 0	001100	25-100	L C
	)	mucky fine			# 			0	2
		sandy loam,							
		loam	_	_	_				
	7-19	Fine sandy	ML, SM	A-4, A-2-4	0 - 4	0-7	90-100	90-100 85-100	50
	0	Loam, Loam	<u> </u>		-	, L	0	0	7
	001	sandy loam	트 	۲ -	# ! >	n H I	000000000000000000000000000000000000000	0	r r
202B:									
stony	0-1	Highly	PT	8-8	0	0	100	100	'
		decomposed							
		plant material			_				
	1-4	Sandy loam			0-2	0-10	85-100	85-100 80-100	20
	4-14		SM, GM	A-1, A-2-4	0-2	0-10	35-60	30-55	2
		Loamy sand,							
		sand							
	14-17	Weathered	:	-	;	;	;	}	-
		bedrock		-	_				
	17-80	Unweathered	-	-	:	-	:	}	-
		bedrock							

Table 16.--Engineering Index Properties--Continued

				Classification	fice	ation	Fragi	Fragments	Pel	Percentage	Q <sub>1</sub>
Map symbol and soil name	Depth	USDA texture			-		>10	3-10	-	sieve numb	quin
			ë _	Unified	-	AASHTO	inches	inches inches	4	10	_
	п				-		Pct	Pct			
206B:											
Traunik	0-1	Highly	PT		Ā	A-8	0	0	100	100	_
		decomposed			_						_
		plant material			_						_
	1-4	Cobbly fine	SM		<u> </u>	A-4, A-2-4	0 - 3	10-22	70-85	65-80	45
_	4-11	Cobbly fine	SM			A-4, A-2-4	0 - 3	10-22	70-85	65-85	45
		sandy loam			_						
	11-24	Very gravelly	GM,	GW-GM, G	GW A-1	-1	0 - 3	15-30	40-60	35-55	10
_		sand			_	_					
_	24-31	Very gravelly	GM,	GW-GM, G	GW A-1	-1-	0-3	10-25	40-60	35-55	10
		sand			_	_		_			
	31-80	Very gravelly	GW,	GM, GW-GM A-1	MA	-1	0 - 3	10-25	40-60	35-55	10
		sand									
206D:											
Traunik	0-1	Highly	PT		Ä	A-8	0	0	100	100	_
		decomposed			_	_		_			
_		plant material			_	_		_		_	
_	1-4	Cobbly fine	SM		Ä	A-4, A-2-4	0-3	10-22	70-85	08-59	45
		sandy loam			_	_		_			
_	4-11	Cobbly fine	SM		Ā	A-4, A-2-4	0-3	10-22	70-85	65-85	45
		sandy loam			_	_		_			
_	11-24	Very gravelly	GM,	GW-GM, G	GW A-1	-1	0-3	15-30	40-60	35-55	10
		sand			_	_		_			
_	24-31	Very gravelly	GM,	GW-GM, G	GW A-1	-1	0-3	10-25	40-60	35-55	10
		sand			_	_		_			
	31-80	Very gravelly	GW,	GM, GW-GM A-1	M A	-1	0 - 3	10-25	40-60	35-55	10
		sand			_						

Table 16. -- Engineering Index Properties -- Continued

Lodense	1		Classif	Classification	Fragi	Fragments	Per	Percentage p	0 H
map symbol and soil name	Depth	USDA texture			>10	3-10	D2	sieve numb	OIII I
			Unified	AASHTO	inches	inches inches	4	10	
	H				Pct	Pct			
211B:									
Munising	0-1	Highly	PT	A-8	0	0	100	100	_
_		decomposed	_	_	_		_		
		plant material			_		_		
	1-2	Sandy loam,	SM	A-4, A-2-4	0-3	8-0	90-100 85-95	85-95	40
_		loamy sand,							
		fine sandy			_		_		
_		loam	_	_	_		_		
_	2-10	Loamy sand,	SM	A-2-4	0-3	8-0	86-98	83-98	62
_		fine sandy	_	_	_				
_		loam, sandy	_	_	_		_		
_		loam	_	_	_				
_	10-14	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
_		loam, sandy	_	_	_				
		loam			_				
	14-22	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
_		loam, sandy	_	_	_		_		
_		loam	_	_	_		_		
_	22-49	Fine sandy	SC-SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	40
		loam, loamy			_	_	_		
		sand, sandy			_		_		
_		loam, loamy			_				
_		fine sand	_	_	_				
_	49-63	Fine sandy	SC, SC-SM	A-2-4, A-4,	0-3	8-0	90-100 85-95	85-95	50
_		loam, sandy	_	A-6	_				
_		clay loam,	_	_	_				_
_		sandy loam			_				
_	63-80	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	50
		loam, sandy			_	_	_		
_		loam	_	_	_				_
		_	_		_				_

Table 16.--Engineering Index Properties--Continued

			Classification	ication	Fragments	nents	Per	Percentage p	Q <sub>1</sub>
Map symbol	Depth	USDA texture			7	01-8	O1	ieve nu	dmr
			Unified	AASHTO	inches	inches inches	4	10	
	u.				Pct	Pct			
211B: Abbaye	0-2	Slightly	PT	A-8	0	0	100	100	'
		decomposed							
	2-4	Pranc marerial	₩S.	A-4. A-2-4	0-1	9-0	85-100	85-100 80-100	45
	1	loamy sand.	:		H	) )	1	 - - - -	)
		fine sandy							
		loam, loamy						-	
		fine sand			_			_	
	4-13	Fine sandy	SM	A-2-4	0-1	9-0	84-100   76-100	76-100	58
		loam, loamy			_				
							_		
		loam, loamy							
		tine sand				(	L		ļ
	T3-72	Fine sandy   loam, sandv	W C	A-2-4, A-4	T - 0	9	82-T00	001-08 001-68	4. U
	25-32	Loamy gand	אַמּי	A-2-4 A-4	0-1	0.0	90-100	001-08 001-06	4 ح
	0 0 0				d    -	0	1		
		loam, loamy							
		U						-	
	32-80	Unweathered	;	-	:	-	:	-	'
		bedrock			_		_		
214B.									
Kalkaska	0-2	Sand	SM. SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	2-6	Sand	SP-SM, SM		0	0-3	95-100		40
	8-9	Sand			0	0-3	95-100	95-100 85-100 40	40
	8-16	Sand			0	0-3	95-100		40
	16-26	Sand			0	0-3	95-100	85-100	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
Blue Lake	0-2	Highly	Тd	A-8	0	0	100	100	'
		decomposed			_			_	
		plant material			_			_	
_	2-7	Loamy sand	SM	A-2-4	0	8-0	90-100	85-100	
	7-9	Sand, loamy	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
		sand			_				
	9-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
	1				-	c	7	- C	,
	77-80	sand, Loamy	SM, SP-SM	A-3, A-2-4	>	8-0	00T-06	90-100   85-100   40 	40
_		loam loamy							
_					_		_	_	

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif	Classification	Fragments	ents	Per	Percentage p	a P
and soil name			Unified	AASHTO	>10   3-10   inches   inches	3-10 inches	4	10	
	ä				Pct	Pct			
214D:									
Kalkaska	0-2	Sand	SM, SP-SM		0	0-3	95-100		40
	2-6	Sand	SP-SM, SM		0	0-3	95-100	85-100 40	40
	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100 40	40
	8-16	Sand		A-2-4, A-3	0	0-3	95-100	85-100 40	40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
Blue Lake	0-2	Highly	PT	A-8	0	0	100	100	_ '
	1	decomposed.		, <u>i</u> _	,	,	:		
		plant material							
_	2-7	Loamy sand	SM	A-2-4	0	8-0	90-100	85-100	40
	7-9		SM, SP-SM	A-1, A-3	0	8-0	90-100	85-100	40
		_							
	9-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
		sand		_	_				
	27-80	Sand, loamy	SM, SP-SM	A-3, A-2-4	0	8-0	90-100   85	85-100	40
		sand, sandy			_				
		loam, loamy			_		_		
		fine sand,			_				
		fine sandy			_				
		loam							
214E:									
Kalkaska	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100		40
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100		40
	8-9	Sand	SM, SP-SM		0	0-3	95-100		40
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100		40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
Blue Lake	0-2	Highly	Ld	A-8	0	0	100	100	'
		decomposed							
		plant material							
	2-7	Loamy sand	SM	A-2-4	0	8-0	001-06	90-100 85-100	40
	7-9	Sand, loamy	SM, SP-SM	A-1, A-3	0	8-0	001-06	85-100	40
					_		_		
	9-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
	04-76	Gand loams	GW GD GW	A-3 A-2-4		α -	001100	90-100 85-100 40	4.0
					,	)	) H	1	9
_									
		U1							_
					_		_		
		loam			_				
					_		_		

Table 16.--Engineering Index Properties--Continued

			Classi	Classification	Fragments	ents	Per	Percentage	Q <sub>1</sub>
Map symbol	Depth	USDA texture					u <sub>2</sub>	sieve numb	dmr
and soil name			Unified	AASHTO	>10 inches	3-10 inches	4	10	
	п			-	Pct	Pct			
221B:									
Jeske	0-3	Highly	PT	A-8	0	0	100	100	П
		decomposed plant material							
	3-21	Sand	SP, SP-SM	A-3	0	0	95-100	90-100	60
	21-31	Weathered	:	:	0	0	:	-	
		bedrock		- —	_				
	31-80	Unweathered	;	:	-	-	-	-	_
		bedrock							
Au Train	0-2	Highly	PT	A-8	0	0	100	100	'
		decomposed		_		_			
-	2-9				0	0	95-100	90-100	45
-	9-14	Sand, coarse	SP-SM, SP	A-3, A-1	0	0	95-100	90-100	45
		sand							
	14-32	Weathered	!	:	:	:	1	:	'
	;	Dedrock							
	32-80	Unweathered	!	:	:	-	-	-	'
Gongeau	0 - 5	Muck	PT	A-8	0	0	100	100	П
	5-7	Mucky loamy	SM	A-2-4	0	0	95-100	90-100	09
		sand			_				
	7-18	Sand	SP-SM, SP	A-3	0	0	95-100	90-100	09
	18-29	Weathered	:	:	0	0	1	-	_
-		bedrock							
	29-80	Unweathered	:	:	:	:	-	:	_
		bedrock							
225B:									
Cusino	0-2	Highly	PT	A-8	0	0	100	100	<u>'</u>
		decomposed							
		plant material		_	_				
	2-8	Loamy sand	SM	A-2-4	0	8-0	90-100	85-100	40
	8-10	Loamy sand,	SM, SP-SM, S	SP A-2-4, A-3	_ o _	8-0	75-100	75-100   70-100	35
		sand, gravelly		_	_	_			
		sand		_	_	_			
	10-17	Gravelly sand,	SM, SP-SM, S	SP A-3, A-2-4	0	8-0	75-100	5-100   70-100	35
-		sand, loamy							
	1	sand		· 			,	1	
	17-80	Stratified	SP, SP-SM	A-3	0	0-15	60-100	60-100   55-100   30	30
_		gravelly sand							
=		_		_	_	-		_	_

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragn	Fragments	Per	Percentage p sieve numb	dur Jub
					>10	3-10			
			Unified	AASHTO	inches	inches	41	10	
	п				Pct	Pct			
225D:	c	7	E	o 		c	6		
	0	decomposed	14	0 4	>	>	9	2	1
_		plant material							
	2-8	Loamy sand	SM	A-2-4	0	8-0	90-100	85-100	40
	8-10	Ø	SM, SP-SM, SP	A-2-4, A-3	0	8-0	75-100	5-100   70-100	35
		sand, gravelly							
	10-17	Gravelly sand,	SM, SP-SM, SP	A-3, A-2-4	0	8-0	75-100 70	70-100	35
		sand, loamy			_		_	_	
	,	sand				,			
	17-80		SP, SP-SM	A-3	0	0-15	001-09	55-100	30
		gravelly sand to sand, sand							
Zzob: Kalkaska	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	2-6	Sand			0	0-3	95-100	85-100	
	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	
	8-16	Sand		A-2-4, A-3	0	0-3	95-100		40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100 40	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
Cusino	0-2	Highly	PT	A-8	0	0	100	100	1
		decomposed							
	2 - 8		SM	A-2-4	0	0-7	86-100	86-100 83-100	62
	ı I			ı !	·				
	8-10	Loamy sand,	SM, SP-SM, SP	A-2-4, A-3	0	2-0	71-100 68	68-100	50
		sand, gravelly							
_	10-17	Grand	מא מס מא מס	7 - 2 - K	_	ď	75_100	001-07	C.
	1		1	5	·			 	)
	17-80	Stratified	SP, SP-SM	A-3	0	0-15	60-100	55-100	30
		gravelly sand			_		_		
		to sand, sand							
226D:									
Kalkaska	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100 40	40
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	16-26	Sand	SM, SP-SM		0	0-3	95-100	85-100	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
		_					_	_	_

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragments	nents	Per	Percentage p	e p
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	ц				Pct	Pct			
226D:	0-2	Highly	Εd	α 	c	c	00	100	'
	1	decomposed		<u> </u>	- — - —		- —    - —		
		plant material			_				
	2-8	Loamy sand,	SM	A-2-4	0	0-7	86-100	86-100 83-100	62
_	8-10	Loamy sand,	SM, SP-SM, SP	SP A-2-4, A-3	0	0-7	71-100	68-100	50
					_				
					_				
	10-17	$\vdash$	SM, SP-SM, SP	A-3, A-2-4	o 	8-0	75-100	70-100	35
		sand, Loamy							
	,	sand				,			
	17-80		SP, SP-SM	A-3	0	0-15	001-09	55-100	30
		gravelly sand to sand, sand							
226E:									
Kalkaska	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	2-6	Sand	U)		0	0-3	95-100		
	8-9	Sand			0	0-3	95-100		40
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	26-80	Sand			0	0-3	95-100	85-100	
	c	7	Ē	·		c	0	6	
Custino	0 - 7	degomposed	<u> </u>	0 - <del>V</del> -	> 	>	0 0 1	0 T	·
		plant material							
	2-8	Loamy sand,	SM	A-2-4	0	0-7	86-100	86-100 83-100	62
		sand			_				
	8-10	Loamy sand,	SM, SP-SM, SP	A-2-4, A-3	0	0-7	71-100 68	68-100	50
		sand, gravelly							
	10-17	התפם יין רפייביה	GW GD-GW GD	A-3 A-2-4	c	α -	75-100	5-100 20-100	ر ب
	i o	sand, loamy		:	· - —	) )	1		)
	17-80	Stratified	SP, SP-SM	A-3	0	0-15	60-100 55	55-100	30
		gravelly sand		_	_				
		to sand, sand							
226F:									
Kalkaska	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	2-6	Sand	SP-SM, SM	A-3, A-2-4	0	0-3	95-100	85-100 40	40
	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100 40	40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100 40	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
		_			_		_		

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classi	Classification	Fragi	Fragments	Ре	Percentage p	Q e
and soil name	1 14 1)				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	uI.				Pot	Pct			
226F:		7	E				, ,		
	N - -	decomposed	-1 -1-4	0 - <del>U</del>	>	> 	0 1	) H	· _
		plant material							
	2-8	Loamy sand,	SM	A-2-4	0	0-7	86-100	83-100	62
	8-10		SM, SP-SM, SI	SP A-2-4, A-3	0	0-7	71-100	71-100 68-100	50
		sand, gravelly							
	10-17	Gravelly sand,	SM, SP-SM, SI	SP A-3, A-2-4	0	8-0	75-100	75-100 70-100	35
_		sand, loamy		. —	_				
_		sand		_	_	_	_		
_	17-80	Stratified	SP, SP-SM	A-3	0	0-15	60-100	60-100 55-100 30	30
_		gravelly sand		_	_	_	_		
		to sand, sand							
227A:									
Halfaday	0-2	Highly	PT	A-8	0	0	100	100	_
		decomposed							
_		plant material			_	_	_		
	2-9	Loamy sand,	SM, SP	A-2-4, A-3	0	0	90-100	90-100 85-100	40
	9-10	Loamy sand,	SM, SP	A-2-4, A-3	o 	0	00T-06	90-100 85-100	40
	10-35	Sand	Ω.	- A	c	c	90-100	90-100 85-100	4 0
	35-80	Sand	SP	A-3	0	0	90-100	90-100 85-100	
232B:									
Shelldrake	0-1	Slightly	PT	A-8	0	0	100	100	П
		decomposed				_			
		plant material							
	1-3	Highly			0	0	100	100	н
		decomposed plant material							
	3-4	Sand	SP, SP-SM	A-3	0	0	100	100	50
	4-80	Sand	SP-SM, SP	A-3	0	0	100	100	50
		_							_

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif	Classification	Fragments	nents	Per	Percentage p sieve numb	P P
and soil name			Thified	OHH0 & &	>10	>10 3-10	4	01	
	In		5		Pot	Pot	•		
233B:									
Abbaye, very									
stony	0-2	Slightly	PT	A-8	0	0	100	100	'
		decomposed			_		_		
		plant material				_	_		
	2-4	Sandy loam,	SM	A-4, A-2-4	0-1	9-0	85-100	5-100  80-100	45
		loamy sand,							
		fine sandy							
		loam, loamy							
		fine sand							
	4-13	Fine sandy	SM	A-2-4	0-1	9-0	84-100   76-100	76-100	58
		loam, loamy							
		sand, sandy		. —			_	_	
		loam, loamy		_			_		
		fine sand							
	13-25	Fine sandy	SM	A-2-4, A-4	0-1	9-0	85-100 80-100	80-100	45
		loam, sandy		. —			_	_	
		loam		_	_		_	_	
	25-32	Fine sandy	SC-SM	A-2-4, A-4	0-1	0-85	90-100 80-100	80-100	45
		loam, loamy			_		_		
		sand, sandy		_				_	
		loam, loamy		_	_	_	_	_	
		fine sand		_					
	32-80	Unweathered	:	-	-	-	-	:	1
		bedrock							
yaota waan eday	0-0	Gandy loam	Ž		c	0-20	80-100 75-100	75-100	4 5
Tena Line Cons	1	Cobbly fine			,	0		1	H
		sandy loam							
	2-5	Sandy loam,	SM	A-4, A-2-4	0	0-20	80-100   75-100	75-100	45
		cobbly fine							
		sandy loam							
	5-13	Cobbly fine	SM	A-2-4, A-4	0	0-20	80-100   75-100	75-100	45
		sandy loam							
	13-33	Fine sandy	SM	A-2-4, A-4	0	0-15	85-100 80-95	80-95	35
		loam, sandy		_					
_		loam, loamy		_			_		
		sand		_					
	33-80	Unweathered	:	:	:	:	-	:	'
		bedrock		_	_		_		
				_	_		_	_	

Table 16. -- Engineering Index Properties -- Continued

							6		
Map symbol	Depth	USDA texture	Classification	ıcatıon	Fragi	ragments		rercentage p sieve numb	di di
and soil name	4				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	п				Pct	Pct			
Levasseur, very stony	0-1	Slightly	PT	A-8	0	0	100	100	- 1
		decomposed						_	
		plant material			_	_			
	1-3	Highly		A-8	0	0	100	100	1
		decomposed							
	•	plant material	į			- 1			•
_	3 - 8 - 8	Extremely flaggy sand	GЪ	<b>A</b> -1	8-15	15-55	20-70	T2-65	0
		sand							
	8-13	Extremelv	GP	A-1	8-15	15-55	20-70	15-65	0
		flaggy sand,							
		very channery							
		sand							
	13-80	Bedrock	}	:	:	:	-	:	1
	,								
Burt, very stony	0-1	Highly	PT	A-8	0	0	100	100	1
_		decomposed							
		plant material		·			, L	7	L
_	C - 1	mucky sand	2F-3E	7 ·	> ·	0 0	007-C0	00T-00 00T-00	n ι
	5-T	Loamy sand,	SM, SP-SM, SP	A-Z-4, A-3	o 	ST-0	001-07	00T-59	35
		sand							
	19-80	Bedrock	;	:	:	:	-	:	1
Sauxhead, very									
	0-1	Highly	PT	A-8	0	0	100	100	,
		decomposed							
		plant material			_				
	1-4	Sandy loam	SM	A-2-4	0-2	0-10	85-100	80-100	50
	4-14	Very channery	SM, GM	A-1, A-2-4	0-5	0-10	35-60	30-55	5
_		loamy sand,			_			_	
		very channery			_				
		sand			_				
	14-17	Weathered	:	-	-	:	-	-	1
		bedrock							
	17-80	Unweathered	-	:	:	:	-	:	1
		bedrock							
_		_			_			_	_

Table 16. -- Engineering Index Properties -- Continued

		-							
Map symbol	Depth	USDA texture	Classification	cation	Fragments	lents	1	Percentage p sieve numb	e P
and soil name	ı				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	In				Pct	Pct			
235B:									
Burt, very stony	0-1	Highly	PT	A-8	0	0	100	100	_
		decomposed							
	-	Might gond	70	ر د		0	0	00 00 1	
	L-3	Loamy sand.		SP A-2-4. A-3	0 0	0-15	00T-00	70-100 65-100 70-100 65-100	35
	ì	channery sand,			,	) H	) 	1	
		sand							
	19-80	Bedrock	-	;	-	-	-	-	' 
336B:									
Waiska,									
extremely		_			_				
bouldery	0-1	Moderately	PT	A-8	0	0	100	100	_
		decomposed					_		
_		plant material			_		_		_
_	1-4	Stony sandy	SM	A-2-4	0-15	0-15	86-06	84-97	57
		loam			_		_		
	4 - 8	Very gravelly	SM, GP, SP,	A-1, A-2-4,	0	0-30	35-95	30-90	20
		coarse sand,	SP-SM	A-3					
		loamy sand,			_		_		
		gravelly sand			_		_		
_	8-18	Very gravelly	GP, SP, SP-SM A-1,	A-1, A-3	0	0-30	35-80	30-75	10
_		sand, gravelly			_				
		sand, very			_				
		gravelly							
		coarse sand			_		_		
	18-80	Very gravelly	SP-SM, SP, GP	A-1, A-3	0	0-30	12-80	10-75	5
		sand,					_		
		extremely			_		_		
_		gravelly			_				
_		coarse sand,			_				
		gravelly sand							
_					_		_		

Table 16. -- Engineering Index Properties -- Continued

			בין מניה הממר בירה הממר	400	4	7 T T T T T T T T T T T T T T T T T T T	100	0544007400	5
Map symbol	Depth	USDA texture	111111111111111111111111111111111111111	1000	158 1-4 	garica	5	sieve numb	dmu
and soil name					, 10	3-10			
			Unitied	AASHTO	inches	ન	4	10	
	ü				Pct	Pct			
36D: Waiska,									
extremely	,			(		,			
bouldery	0-1	Moderately	PT	A-8	0	0	100	100	1
		decomposed   plant material							
	1-4	Stony sandy	SM	A-2-4	0-15	0-15	86-06	84-97	57
		loam							
	4-8	Very gravelly	SM, GP, SP,	A-1, A-2-4,	0	0-30	35-95	30-90	20
		coarse sand,	SP-SM	A-3	_			_	_
		very cobbly			_			_	
		loamy sand,						_	
		gravelly sand							
	8-18	Gravelly sand,	GP, SP, SP-SM	A-1, A-3	0	0-30	35-80	30-75	10
		very gravelly							
		coarse sand,							
		very gravelly							
	18-80	Very gravelly	SP-SM, SP, GP	A-1, A-3	0	0-30	15-80	10-75	- 2
		sand,							_
		extremely			_			_	_
		gravelly			_			_	_
		coarse sand,			_			_	_
		gravelly sand			_			_	_
37B:			I	(					
Chatham	T-0	Highly	T.d.	A-8	o 	o 	001	00 T	'
		nlant material							
	7	Gandir Toam	M	A-2 A-4	- 0	0 1 1	70-100	65.95	4 5
	1	gravelly fine			) )	) -	) 		)
		sandy loam							
	6-20	Sandy loam,	SM	A-4, A-2-4	0-3	0-15	70-100 65-95	65-95	45
		gravelly fine						_	_
		sandy loam							_
	20-39	Sandy loam,	SM	A-4	3-30	3-30	70-95	65-90	45
		channery fine							
		sandy loam,							
		flaggy fine							
		sandy loam							
	39-80	Extremely	GM, SM	A-4, A-2-4	15-50	15-45	30-80	25-75	10
		flaggy fine							
		sandy loam,							
		very channery							
		loamy sand			. <u> </u>				
		•							
		_						_	_

Table 16.--Engineering Index Properties--Continued

			Classif	Classification	Frace	Fragments	D 0	Percentage	Ç
Map symbol	Depth	USDA texture		1 0 1 0 1 0	h 1			sieve numb	dmr.
and soil name					>10			-	
			Unified	AASHTO	inches	inches	4	10	
	ų				Pct	Pct			
237B:	•		E	O					
ביייייייייייייייייייייייייייייייייייי	# 1 0	cobbly muck	<del>-</del>	0 4 _	>	> 	0	20	-
	4-11	Very gravelly	GM, SM	A-2-4, A-1	0 - 8	15-44	40-70	35-65	25
		sandy loam,							
				_	_	_		_	
		sandy loam					_	_	
	11-80	Very gravelly	GP-GM, SP	A-3, A-1	8-0	15-44	40-70	35-65	15
		sand, very		_					
		cobbly sand							
239B:									
Longrie	0 - 4	Fine sandy	MI, SM	A-4, A-2-4	0	0-20	85-100	85-100 80-100	45
							_	_	
		loam, silt						_	
		loam							
_	4-9	Silt loam,	ML, SM	A-2-4, A-4	0	0-20	85-100	5-100 80-100	45
		sandy Loam,							
_		tine sandy							
		Loam					- C		
	9-11		ML, SM	A-2-4, A-4	0	0-20	55-100	55-100   50-100	30
		sandy loam,							
_		gravelly sandy							
	,								
_	11-27	ly sandy	Mr, SM	A-2-4, A-4	0	0-20	55-100	55-100 50-100	30
		Loam, rine							
_									
_	27-31	Sandy loam,	SM, ML	A-2-4, A-4	0	0-23	80-100	80-100 76-100	67
		loam, gravelly							
				_					
	31-80	Unweathered	:	:	-	:	-	:	_
		bedrock							
Shingleton	0-1	Loamy sand,	MS	A-2-4, A-3	0	0-5	92-100	92-100 85-100	47
	1					) -			i
	1-7	Loamy sand,	SM	A-2-4, A-3	0	0-5	92-100	92-100 85-100	47
		sand		_					
	7-8	Sand, loamy	SM	A-2-4, A-3	0	0-5	92-100	92-100   85-100	47
		sand		_			_	_	
	8-11	Sand, loamy	SM	A-2-4, A-3	0	0-2	92-100	92-100 85-100	47
		sand						_	
-	11-80	Unweathered	:	:	-	:	-	-	_
		bedrock							
_							_	_	_

Table 16.--Engineering Index Properties--Continued

			Classif	Classification	Frace	Fragments	D. P. P. P. P. P. P. P. P. P. P. P. P. P.	Percentage n	ξ.
Map symbol	Depth	USDA texture						sieve numb	1mb
and soil name	'				>10	3-10			
			Unified	AASHTO	inches	inches inches	41	10	
	u.				Pat	Pct			
240F:									
Trout Bay	0-19	Muck	PT	A-8	- 0 -	0	100	100	П
	19-34	Weathered	-	:	-	:	:	-	_
		bedrock	_		_				
	34-80	Unweathered	-	:	-	-	-	-	_
		bedrock							
Gongeau	0-5	Muck	PT	A-8	0	0	100	100	1
	2-7	Mucky loamy	SM	A-2-4	0	0	95-100	90-100	60
_		sand	_	_	_			_	
	7-18	Sand	SP-SM, SP	A-3	_ o _	0	95-100	95-100   90-100	9
	18-29	Weathered	-	:	_ o _	0	-	-	_
		bedrock	_		_				
_	29-80	Unweathered	:	-	-	:	-	-	_
		bedrock			_				_
Shingleton	0-1	Loamy sand,	SM	A-2-4, A-3	0	0-5	92-100	92-100 85-100	47
					_				
	1-7	Loamy sand,	SM	A-2-4, A-3	0	0-5	92-100	92-100 85-100	47
					_				
	7-8	Sand, loamy	SM	A-2-4, A-3	0	0-2	92-100	92-100 85-100	47
	,				_				
	8-11	Sand, loamy sand	NS _	A-2-4, A-3	o 	0-2	92-100	92-100   85-100   	47
_	11-80	Unweathered	;	;	;	;	;	;	'
	: 	bedrock							
Rock outcrop.									
		. — .							
241: Cathro	0-46	Misk	Εd	8 - K	c	c	100	100	-
	9 4				o (	, ,	0	0 0	
	46-80	Fine sandy   loam, sandy   loam, silt	жг, ум 	A-4, A-2-4	o 	ر د د	00 T - 06	00T-98	ر ا
_					_			_	

Table 16.--Engineering Index Properties--Continued

			-		-				
Map symbol	Depth	USDA texture	CLASSI	Classification	Fragments	nents	4 W	rercentage p sieve numb	dir dir
and soil name	•				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	ü				Pat	Pct			
241:		- —	- —		_				
Gay	0 - 4	Muck	PT	A-8	0	0	100	100	П
	4-7	Fine sandy	SM	A-2-4, A-4	0-24	0-15	12-100	75-100   70-100	35
		cobbly sandy							
		loam							
_	7-11	Sandy loam,	SM	A-2-4, A-4	0-24	0-15	12-100	75-100   70-100	35
_		cobbly sandy			_		_		
_		loam, loamy	_	_	_				
		sand							
	11-16	Sandy loam,	SM, SC	A-2-4, A-4,	8-0	8-0	85-100	85-100 80-100	50
		sandy clay		A-6					
		loam, fine		. —					
		sandy loam							
	16-80	Sandy loam	SM	A-2, A-4	8-0	8-0	85-100	80-100	45
242B: Kalkaska.									
severely burned	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
1	2-6	Sand			0	0-3	95-100	85-100 40	40
	9-9	Sand			0	0-3	95-100	85-100 40	40
	8-16	Sand	SP-SM, SM		0	0-3	95-100		40
	16-26	Sand			0	0-3	95-100		40
	26-80	Sand	SP-SM, SM		0	0-3	95-100	85-100 40	40
		. —		_	_				
242D:									
severely burned	0-2	Sand	SM. SP-SM	A-2-4. A-3	0	0-3	95-100	85-100	40
7	2 2	n n	GD-GM GM	, 4			951-19		4.0
_	0 00	Sand			o c	0 0	95-100		4 0
	8-16	Sand	SP-SM, SM		0	0-3	95-100		40
	16-26	Sand			0	0-3	95-100	95-100 85-100 40	40
	26-80	Sand			0	0-3	95-100	85-100 40	40
							_		
242F: Kalbaska				. — —					
severely burned	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
1	2-6	Sand	SP-SM, SM	2-4.	0		95-100		40
	9 6	Sand	- 1			0-3	95-100	85-100 40	40
	8-16	Sand	SP-SM. SM		o o	0-3	95-100	95-100 85-100 40	40
	16-26	Sand				0-3	95-100	85-100 40	40
	26-80	Sand			o o	0-3	95-100	95-100 85-100 40	40
			_	_					•

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classi	Classification	Fragn	Fragments	Ъ	Percentage p sieve numb	dur Jmb
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	H				Pct	Pct			
243:									
Markey	0-3	Mucky peat	PT	A-8	0	0	100	100	1
	3-20	Muck	PT	A-8	0	0	100	100	90
	20-80	Sand	SP-SM	A-3	0	0	95-100	90-100	45
245B:									
Trout Bay	0-19	Muck	PT	A-8	0	0	100	100	1
	19-34	Weathered	:	:	:	:	:	-	_
		bedrock	_		_	_			
	34-80	Unweathered	-	:	:	:	:	-	<u> </u>
		bedrock							
Lupton	0 - 4	Peat	PT	A-8	0	0	100	100	1
	4-80	Muck	PT	A-8	0	0	100	100	90
Gongeau	0-5	Muck	PT	A-8	0	0	100	100	Н
	5-7	Mucky loamy	SM	A-2-4	0	0	95-100	90-100	09
		sand							
	7-18	Sand	SP, SP-SM	A-3	0	0	95-100	90-100	09
	18-29	Weathered	-	:	0	0	:	:	_
		bedrock			_	_			
	29-80	Unweathered	:	:	:	:	:	:	<u> </u>
		bedrock							
246B:									
Garlic	0-2	Moderately	PT	A-8	0	0	100	100	
		decomposed			_	_			
		plant material							
	2-9		SP, SP-SM		0	0	95-100		45
	9-11	sand,	SP, SP-SM,		0	0	95-100		45
	07-TT	rine	SP, SM,	Ą,	0 0	0 0	95-100		4 . U .
	20-29	rine	SP, SM,	, A-2-	0 0	0 0	95-100		4 . U .
_	29-80	Sand, rine sand	SF, SM,	SF-SM A-2-4, A-3	> 	>	00T-66	00T-06	4. U
246D:									
Garlic	0-2	Moderately	PT	A-8	0	0	100	100	_
		decomposed			_	_			
-		plant material							
	2-9		SP, SP-SM		0	0	95-100		
	9-11	sand,	SP, SP-		0 (	0 (	95-100	90-100	
	11-20	fine	SP, SM,		0 (	0 (	95-100	90-100	
	20-29	tine	SM,	١.	0	0	95-100	001-06	45
	29-80	Sand, fine sand SP,	SM,	SP-SM A-2-4, A-3	0	0	95-100	95-100   90-100	45
_					_				

Table 16.--Engineering Index Properties--Continued

			5	1000					
Map symbol	Depth	USDA texture	ממטוט	Classification	E L CAG	ragments	7	rercentage p sieve numb	dmr Jmb
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	In				Pct	Pct			
246E:									
Garlic	0-2	Moderately	PT	A-8	0	0	100	100	_
		decomposed							
		plant material							
_	2-9	Sand	SP-SM	A-3	0	0	95-100		
_	9-11	Fine sand, sand	SP, SP-S	SM A-3, A-2-4	0	0	95-100	95-100   90-100	45
_	11-20	Sand, fine sand	SP, SM,	SP-SM A-3, A-2-4	0	0	95-100	95-100   90-100	45
_	20-29	Sand, fine sand SP,	SW,	SP-SM A-3, A-2-4	0	0	95-100	95-100   90-100	45
	29-80	Sand, fine sand	SP, SM,	SP-SM A-2-4, A-3	0	0	95-100	95-100   90-100	45
248B:									
Escanaba	0-1	Moderatelv	Τd	8-8	0	0	100	100	'
	1	decomposed		<u> </u>					
-		plant material							
_	1-3	Loamy fine	SM, SP-SM,	SP A-4, A-3, A-	0	8-0	90-100	90-100 85-100	40
		sand, fine		2 - 4	_				
_		sand, loamy		_	_	_			
_		sand, sand			_		_	_	
_	3-6	Sand, fine	SP, SP-SM,	SM A-2-4, A-3,	0	0-8	90-100	90-100 85-100	40
_		sand, loamy		A-4	_	_	_		
_		fine sand		_	_		_	_	
_	6-26	Sand, loamy	SP, SP-SM,	SM A-2-4, A-3,	0	8-0	90-100	90-100  85-100	40
				A-4					
		sand, loamy							
	26-35	Loamy sand,	SM	A-2-4, A-4	0	0-8	90-100	90-100 85-100	40
_		loam, loamy		. —	_	_			
		fine sand			_	_			
_	35-42	Sandy loam,	SM	A-2-4, A-4	0	8-0	90-100	90-100   85-100	50
_		fine sandy		_	_	_	_		
_		loam		_	_		_	_	
	42-80		SM	A-2-4, A-4	0	0-25	70-100 65-95	65-95	45
		sandy loam							

Table 16. -- Engineering Index Properties -- Continued

Me re M		4 &C211	Classif	Classification	Fragi	Fragments	Per	Percentage p	9 H
and soil name	d d	בפירוים ב			>10	3-10	u	D > D	
			Unified	AASHTO	inches	inches inches	4	10	_
	ų.				Pct	Pct			
48B:									
Greylock	0-1	Moderately	PT	A-8	o _	0	100	100	_
		decomposed		_	_	_	_		_
		plant material		_	_	_	_		_
	1-6	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		fine sandy		_	_	_	_		
		loam		_	_	_	_		
	6-7	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	40
		fine sandy		_	_	_	_		_
		loam, loamy		_	_	_	_		_
		sand		_	_	_	_		_
	7-9	Fine sandy	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		loam, sandy		_	_	_	_		_
		loam		_	_	_	_		_
	9-19	Fine sandy	SM	A-2-4, A-4	o —	0-15	90-100 85-95	85-95	50
		loam, sandy		_	_	_	_		_
		loam		_	_	_	_		_
	19-26	Sandy loam,	SM	A-2-4, A-4	o —	0-15	90-100 85-95	85-95	40
		fine sandy		_	_	_	_		_
		loam, loamy		_	_	_	_		_
		sand		_	_	_	_		_
	26-34	Sandy loam,	SM	A-2-4, A-4	o —	0-15	90-100 85-95	85-95	40
		fine sandy		_	_	_	_		_
		loam, loamy		_	_	_	_		_
		sand		_	_	_	_		_
	34-80	Sandy loam,	SM	A-2-4, A-4	0	0-15	85-100 80-95	80-95	45
		gravelly fine			_	_	_		_
		sandy loam			_				
		_				_	_		_

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture		Class	ific	Classification		Fragi	Fragments	Per	Percentage p	e p
and soil name	•				-			>10	3-10			
			_	Unified	_	AASHTO	TO	inches	inches inches	4	10	_
	ri I							Pct	Pct			
248D:												
Escanaba	0-1	Moderately	PT		<u>~</u>	A-8		0	0	100	100	_
	_	decomposed	_		_			_	_	_		_
	_	plant material	_		_			_	_			_
	1-3	Loamy fine	SM,	SM, SP-SM,	SPA	SP A-4, A-3, A-	3, A-	0	8-0	90-100	90-100   85-100   40	40
		sand, fine	_		_	2-4		_	_		_	
	_	sand, loamy	_		_			_	_			_
	_	sand, sand	_		_			_	_			_
	3-6	Sand, fine	SP,	SP-SM,	SMA	SM A-2-4,	A-3,	0	8-0	90-100	90-100 85-100 40	40
	_	sand, loamy	_		_	A-4		_	_	_	_	
	_	fine sand	_		_			_	_	_	_	
	6-26	Sand, loamy	SP,	SP, SP-SM,	SMA	SM A-2-4, A-3,	A-3,	0	0-8	90-100	90-100 85-100	40
	_	sand, fine	_		_	A-4		_	_	_	_	_
	_	sand, loamy	_		_			_	_	_		_
	_	fine sand	_		_			_	_	_	_	_
	26-35	Loamy sand,	SM		<u>~</u>	A-2-4,	A-4	0	8-0	90-100	90-100   85-100   40	40
	_	fine sandy	_		_			_	_	_	_	_
	_	loam, loamy	_		_			_	_	_	_	_
		fine sand	_		_			_	_	_	_	
	35-42	Sandy loam,	SM		4	A-2-4, A-4	A-4	0	8-0	90-100	90-100  85-100  50	50
	_	fine sandy	_		_			_	_			_
	_	loam	_		_			_	_			_
	42-80	Gravelly fine	SM		4	A-2-4, A-4	A-4	0	0-25	70-100 65-95	65-95	45
		sandy loam,										
	_	sandy loam	_		_			_	_	_		_
		_	_									

Table 16. -- Engineering Index Properties -- Continued

Mer rew		+ &G2II	Classi	Classification	Frag	Fragments	Per	Percentage p	9 E
and soil name	neprii	OSDA CEXCUIA			>10	3-10		D > D T	
			Unified	AASHTO	inches	inches inches	4	10	
	ų.				Pct	Pct			
48D:									
Greylock	0-1	Moderately	PT	A-8	0	0	100	100	_
	_	decomposed				_	_		_
		plant material		_	_		_		
	1-6	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		fine sandy			_	_	_		_
		loam		_	_	_	_		
	6-7	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100	85-95	40
		fine sandy		. —	_				_
		loam, loamy		. —	_				_
		sand		_	_	_			_
	7-9	Fine sandy	SM	A-2-4, A-4	0	0-15	90-100	85-95	50
		loam, sandy		_	_	_	_		_
		loam		_	_	_	_		_
	9-19	Fine sandy	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		loam, sandy		_	_	_	_		_
		loam		_	_	_	_		_
	19-26	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100	85-95	40
		fine sandy		_	_	_	_		_
		loam, loamy		_	_	_	_		_
		sand		_	_		_		
	26-34	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100	85-95	40
		fine sandy		. —	_		_		
		loam, loamy		_	_	_			_
		sand		_	_		_		
	34-80	Sandy loam,	SM	A-2-4, A-4	0	0-15	85-100 80-95	80-95	45
		gravelly fine		_	_	_	_		_
		sandy loam		_	_				
	_				_	_	_		

Table 16.--Engineering Index Properties--Continued

Map avmbol	Depth	USDA texture		Classification	ifica	tion		Fragi	Fragments	Pe	Percentage p	e p
and soil name	1		_		-			>10	3-10	,		
			_	Unified	-	AASHTO	TO	inches	inches inches	4	10	-
	rI.							Pct	Pct			
248E:												
Escanaba	0-1	Moderately	PT		A-8	80		0	0	100	100	_
		decomposed	_		_							_
		plant material	_		_			_			_	_
	1-3	Loamy fine	SM,	SM, SP-SM,	SP A-	SP A-4, A-3, A-	3, A-	0	8-0	90-100	90-100   85-100   40	40
	_	sand, fine	_		- 2	2-4		_			_	_
		sand, loamy	_		_			_			_	_
		sand, sand	_		_			_			_	_
	3-6	Sand, fine	SP,	SP-SM,	SM A-2-4,		A-3,	0	8-0	90-100	90-100 85-100 40	40
		sand, loamy	_		4	A-4		_			_	_
		fine sand	_		_			_			_	_
	6-26	Sand, loamy	SP,	SP, SP-SM,	SM A-	SM A-2-4, A-3,	A-3,	0	8-0	90-100	90-100 85-100	40
		sand, fine	_		4	A-4		_			_	_
		sand, loamy	_		_			_			_	_
	_	fine sand	_		_			_			_	_
	26-35	Loamy sand,	SM		A-	A-2-4,	A-4	0	8-0	90-100	90-100   85-100   40	40
	_	fine sandy	_		_			_			_	_
		loam, loamy	_		_			_			_	_
		fine sand	_		_			_			_	_
	35-42	Sandy loam,	SM		A-	A-2-4, A-4	A-4	0	8-0	90-100	90-100  85-100  50	50
		fine sandy	_		_			_			_	_
		loam	_		_			_			_	_
	42-80	Gravelly fine	SM		A-	A-2-4, A-4	A-4	0	0-25	70-100 65-95	65-95	45
		sandy loam,	_		_			_			_	_
		sandy loam	_		_							_
			_		_							

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Fragn	Fragments	Ред	Percentage p	Q
Map symbol	Depth	USDA texture						sieve m	dmr
and soll name			Unified	AASHTO	>10 inches	>10 3-10 inches inches	4	10	
	ų.				Pot	Pct			
248E:						,		,	
Greylock	0-1	Moderately	다 다 -	A-8	0	0	100	100	_
		plant material							
	1-6	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		fine sandy			_				
		loam			_		_		
	6-7	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	40
		loam, loamy							
		sand							
	7-9	Fine sandy	SM	A-2-4, A-4	0	0-15	90-100	85-95	20
		loam, sandy							
		loam							
_	9-19	Fine sandy	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		loam, sandy							
		loam			_		_		
	19-26	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	40
		U2							
		loam, loamy							
		sand				i c		L	,
	26-34	Sandy Loam,	WS _	A-2-4, A-4	0	0-15	90-100   85-95 	85-95	40
_									
	34-80	Sandy loam,	SM	A-2-4, A-4	0	0-15	85-100 80-95	80-95	45
		gravelly fine	<u> </u>	  -  -					
		sandy loam	. — .	. — .					
249B.									
Sauxhead	0-1	Highly	PT	A-8	0	0	100	100	_ '
		decomposed							
		plant material			_				
	1-4	Sandy loam	SM	A-2-4	0 - 5	0-10	85-100	85-100 80-100	50
_	4-14	Very channery	SM, GM	A-1, A-2-4	0-5	0-10	35-60	30-55	2
	_	loamy sand,		_	_		_		
		very channery	_	_	_		_		
		sand	_	_	_		_		
	14-17	Weathered	-	:	-	-	:	-	_
		bedrock							
	17-80	Unweathered	:	:	-	-	:	:	<u> </u>
		400							
_	_	_	_	_	_		_		_

Table 16.--Engineering Index Properties--Continued

			ב מיני מיני	מטיי ביי היים מין	1	7 T	, od	T opethooned	t c
Map symbol	Depth	USDA texture			n 1 1			sieve numb	din b
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	п				Pct	Pct			
249B:									
Skandia	0 - 4	Mucky peat	PT	A-8	0	0	100	100	П
	4-26	Muck	PT	A-8	0	0	100	100	90
	26-31	Weathered	:	:	:	-	:	:	_
		bedrock		_	_	_			_
_	31-80	Unweathered	-	:	:	-	-	:	_
		bedrock							
250B:									
Chocolay,					_	_			_
extremely stony	0-2	Highly	PT	A-8	0	0	100	100	_
_		decomposed		_	_				_
_		plant material		_	_				_
	2-3	Very stony fine	SM	A-4	8-30	25-55	40-70	35-65	25
_		sandy loam		_	_				_
	3-8	Very stony fine  GM,	GM, SM	A-2-4, A-4	8-30	25-55	40-70	35-65	25
_		sandy loam,		_	_				_
_		very gravelly		_	_	_			_
		sandy loam,		_	_				_
_		very cobbly		_	_	_			_
		fine sandy		_	_				_
		loam			_	_			_
	8-14	Very gravelly	GM, SM	A-2-4, A-4	8-30	25-55	40-70	35-65	25
		sandy loam,				_			_
		very cobbly							
		fine sandy							
_		loam, very			_				_
		stony fine			_	_			_
_		sandy loam			_	_			_
_	14-27	Very gravelly	SM, GM	A-4, A-2-4	8-30	25-55	40-70	35-65	25
		sandy loam,			_	_			_
_		very cobbly		_	_	_			_
_		fine sandy		_	_	_			_
		loam		_	_	_			_
_	27-80	Bedrock	-	:	:	:	-	:	_
		_		_	_				

Table 16. -- Engineering Index Properties -- Continued

Depth   USDA texture			-	Classif	Classification	Fragi	Fragments	Per	Percentage p	Ωı
soil name         In these lanches         >10         3-10<	Map symbol	Depth	USDA texture					<b>U</b> 1	sieve numb	quin
In   Unified   AASHTO   inches   inches   inches   inches	and soil name		_	_	_	>10	3-10			
bayille,         Fuck         Pet         Pet         Pet           remely stony         0-5         Muck         PT         A-8         0         0           fine sandy         Sandy loam, loamy         Sandy loam, cobbly         A-4, A-2-4         0-8         0-30           fine sandy         Sandy loam, sandy         SA         A-2-4, A-4         0-8         0-30           sandy loam, sandy         SM         A-2-4, A-4         0-8         0-30           loam         fine sandy         SM         A-2-4, A-4         0-8         0-30           loam         fine sandy         SM         A-2-4, A-4         0-8         0-8           loam         loam         sandy loam, sandy         SM         A-2-4, A-4         0-8         0-8           loam         sandy         Ioam         sandy         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Ioam         Io				Unified	AASHTO	inches	inches		10	
bsville,    5-9   Sandy loam, SM   A-4, A-2-4   0-8   0-30     fine sandy   loam, loamy   loam, loamy   loam   loam, loamy   loam   loam, sandy loam, fine sandy loam, fine sandy loam, fine sandy loam, fine sandy loam, loam   loam, sandy   l		п				Pct	Pct			
tony   0-5   Muck   PT   A-8   0   0   0	250B:									
0-5 Muck   PT   A-8   0   0   5-9 Sandy loam, SM   A-4, A-2-4   0-8   0-30   fine sandy   10am, 10amy   10am   10am   9-23 Cobbly fine sandy   10am   10am   23-36 Fine sandy   10am   23-36 Fine sandy   SM   A-2-4, A-4   0-8   0-8   10am, sandy   SM   A-2-4, A-4   0-8   0-8   10am, sandy   SM   A-2-4, A-4   0-8   10am, sandy   SM   A-2-4, A-4   0-8   10am, sandy   SM   A-2-4, A-4   0-8   10am, sandy   SM   A-2-4, A-4   0-8   10am, sandy   SM   A-2-4, A-4   0-8   10am, sandy   SM   A-2-4, A-4   0-8   10am, sandy   SM   A-2-4, A-4   0-8   10am, sandy   SM   A-2-4, A-4   0-8   10am, sandy   SM   A-2-4, A-4   0-8   10am, sandy   SM   A-2-4, A-4   0-8   10am, sandy   SM   SM   A-2-4, A-4   0-8   10am, sandy   SM   SM   A-2-4, A-4   0-8   10am, sandy   SM   SM   SM   SM   SM   SM   SM   S	Jacobsville,		_	_	_	_	_	_		_
Sandy loam,   SM   A-4, A-2-4   0-8   0-30     fine sandy   sand, cobbly	extremely stony		Muck	PT	A-8	0	0	100	100	1
fine sandy		5-9	Sandy loam,	SM	A-4, A-2-4	0 - 8	0-30	75-100	70-100	35
loam, loamy   sand, cobbly   fine sandy   loam   A-2-4, A-4   0-8   0-30   sandy   loam   A-2-4, A-4   0-8   0-8   loam   Fine sandy   loam   Fine sandy   loam   Bandy   loam			fine sandy	_	_	_	_	_		
sand, cobbly   fine sandy   loam   A-2-4, A-4   0-8   0-30     sandy loam, fine sandy			loam, loamy	_	_	_	_	_		
fine sandy	_		sand, cobbly	_	_	_	_	_		_
Loam	_		fine sandy	_	_	_	_	_		_
Cobbly fine   SM   A-2-4, A-4   0-8   0-30     sandy loam,   fine sandy	_		loam	_	_	_	_			
fine sandy		9-23	_	SM	A-2-4, A-4	0 - 8		75-100	70-100	40
fine sandy	_		sandy loam,	_	_	_	_	_		_
loam, sandy	_		fine sandy	_	_	_	_	_		_
loam   Fine sandy   SM   A-2-4, A-4   0-8   0-8   10am, sandy   Ioam   Unweathered         bedrock	_		loam, sandy	_		_	_	_		
Fine sandy   SM   A-2-4, A-4   0-8   0-8   10-8	_		loam	_	_	_	_	_		_
loam, sandy		23-36	_	SM	A-2-4, A-4	0 - 8	8-0	95-100	90-100	20
loam	_		loam, sandy	_		_	_	_		
Unweathered	_		loam	_	_	_	_			
bedrock		36-80	_	-	:	-	-	-	-	_
			bedrock	_	_	_	_	_		_

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Fragn	Fragments	Per	Percentage	Ω
Map symbol	Depth	USDA texture			-		Ø	sieve numb	dmn
and soil name		_			>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	In				Pct	Pct			
251B:									
Greylock	0-1	Moderately	PT	A-8	0	0	100	100	<u> </u>
_		decomposed		-	_		_		
		plant material	_	_	_		_		_
	1-6	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
_		fine sandy			_				
		loam		_	_	_			
_	6-7	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	40
_		fine sandy			_	_	_		
_		loam, loamy			_	_	_		
_		sand	_	_	_		_		
_	7-9	Fine sandy	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
_		loam, sandy	_	_	_		_		
_		loam			_	_	_		
	9-19	Fine sandy	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
_		loam, sandy			_	_	_		
_		loam		_	_	_			
_	19-26	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	40
_		fine sandy			_				
_		loam, loamy			_				
_		sand		_	_		_		
_	26-34	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	40
_		fine sandy			_	_	_		
_		loam, loamy			_				
_		sand		_	_		_		
	34-80	Sandy loam,	SM	A-2-4, A-4	0	0-15	85-100 80-95	80-95	45
_		gravelly fine			_	_	_		
_		sandy loam		_	_		_		
		_	_		_				

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif	Classification	Fragn	Fragments	Per	Percentage p	e p
	i i		Unified	AASHTO	>10	>10   3-10	4	01	
	H				Pct	Pct			<u> </u>
251D:									
Greylock	0-1	Moderately	PT	A-8	0	0	100	100	
		plant material							
_	1-6	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		fine sandy							
_	6-7	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 8	85-95	40
		fine sandy			_		_		
		loam, loamy							
	1	sand	Ž	, ,	-	, L	00 1	и 0	
		loam, sandv	50		 	1	1	0	) 
_	9-19	Fine sandy	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		loam, sandy							
	•		į			,			
	19-26		SM	A-2-4, A-4	0	0-15	90-100   85-95	85-95	40
_		loam, loamy							
						I.			,
	26-34		SM	A-2-4, A-4	o 	0-15	90-100   85-95	85-95	40
		Ø							
		Loam, Loamy							
	34-80	Sandy loam	M.S.	A-2-4 A-4	c	71.0	85-100 80-95	80 - 9E	4 5
	•	gravelly fine			· _	i i	1	9	1
		sandy loam							
252A:									
Finch	0-1	Moderately	PT	A-8	0	0	100	100	
_		decomposed		_	_				_
_		plant material			_				
_	1-11	Sand	SP, SP-SM		0	0	95-100	95-100   90-100	45
	11-42	Sand	SP, SP-SM		0	0	95-100	95-100   90-100	45
	42-80	Fine sand, sand	SP-SM, SP	A-2-4, A-3	0	0	95-100	95-100   90-100	50
Kinross	0-3	Muck	PT	A-8	0	0	100	100	1
	3-14	Sand	SP-SM, SM	A-2-4, A-3	0	0	100	90-100	ш
	14-22	Sand			0	0	100	90-100 50	50
	22-35		SP-SM	A-3	0	0	100	90-100	50
	35-80		SP-SM	A-3	0	0	100	90-100 50	50
_		_		. —	_				

Table 16.--Engineering Index Properties--Continued

			Classif	Classification	Fragments	nents	Per	Percentage	Ω
Map symbol and soil name	Depth	USDA texture			>10	3-10	JI	sieve numb	qur
			Unified	AASHTO	inches	inches inches	4	10	
	uI.				Pct	Pct			
254C:									
Kalkaska,		. —			_			_	
dissected	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
	2-6	Sand	SP-SM, SM		0	0-3	95-100	95-100   85-100   40	40
	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100 40	40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100 40	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
Blue Lake,									
dissected	0-2	Highly	PT	A-8	0	0	100	100	1
		decomposed							
		plant material	. —					_	
	2-7	Loamy sand	SM	A-2-4	0	8-0	90-100	90-100 85-100	40
	7-9	Sand, loamy	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
	_	sand	_	_	_				
	9-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
		sand	_	_	_			_	
	27-80	Sand, loamy	SM, SP-SM	A-3, A-2-4	0	8-0	90-100	90-100  85-100  40	40
					_			_	_
		loam, loamy	_	_	_			_	
		fine sand,	_	_	_			_	
		fine sandy			_			_	
		loam							
254E:									
Kalkaska,									
dissected	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	8-16	Sand	SP-SM, SM		0	0-3	95-100	95-100   85-100   40	40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100 40	40
			_						_

Table 16.--Engineering Index Properties--Continued

May a creM	Den t	TISDA + extitre	Classif	Classification	Fragi	Fragments	Per	Percentage p	G E
	1 1 1 1				>10	3-10	-		
			Unified	AASHTO	inches	inches inches	4	10	
	ä				Pat	Pct			
Blue Lake,	c		E	·			0	0	
	0-1	Arngury	1	Q-4-0	>	>	001	001	ı
-		aecombosea							
		₽			_				
	2-7	Loamy sand	SM	A-2-4	0	8-0	90-100	85-100	40
	7-9	Sand, loamy	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100   85-100   40	40
		sand			_	_	_	_	
	9-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
		sand					_		
	27-80	Sand, loamy	SM, SP-SM	A-3, A-2-4	0	8-0	90-100	90-100   85-100	40
		sand, sandy			_				
		loam, loamy		_	_				
		fine sand,		_	_				
254F:									
Kalkaska,				. —					
dissected	0-2	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	2-6	Sand	SP-SM, SM	A-3, A-2-4	0	0-3			40
	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100 40	40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100 40	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
					_				
Blue Lake,									
dissected	0-2	Highly	PT	A-8	0	0	100	100	1
		decomposed		_	_	_	_	_	
		plant material		_	_	_	_	_	
	2-7	Loamy sand	SM	A-2-4	0	8-0	90-100	90-100 85-100	40
	7 - 9	Sand, loamy	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100   85-100	40
		sand		_	_		_	_	
	9-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
		sand		_	_	_			
_	27-80	Sand, loamy	SM, SP-SM	A-3, A-2-4	0	8-0	90-100	90-100   85-100	40
		sand, sandy		_	_	_	_	_	
		loam, loamy		_	_	_	_	_	
		fine sand,		_	_	_	_	_	
		fine sandy		_	_	_	_	_	
		loam		_	_	_	_	_	
		_		_	_		_	_	

Table 16. -- Engineering Index Properties -- Continued

					-				
Map symbol	Depth	USDA texture	CIASSII	ciassilication	Fragments	lents		rercentage p sieve numb	a P
and soil name				_	>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	In				Pct	Pct			
255D: Wallace	0-2	    Moderatelv	Ţ		0	0	100	100	'
		decomposed	i i		·		- — - - —		
_		plant material		_	_				
	2-10	fine	SM,		0	0	95-100	95-100 95-100	45
_	10-11	fine			0	0	95-100	95-100 95-100	45
_	11-21		SM, SP-SM		• •	0	95-100		
_	21-26	Sand, fine sand	SP-SM, SM		• •	0	95-100	95-100	45
_	26-59	Sand, fine sand	SM, SP-SM		• •	0	92-100	95-100	45
	59-80	Sand, fine sand SM,	SM, SP-SM	A-2-4, A-3	0	0	95-100	95-100   95-100	45
256B:									
Whitewash	0-3	Moderately	PT	A-8	0	0	100	100	<u> </u>
		decomposed							
	3-7	Sand, fine sand	SP-SM. SM	A-3, A-2-4	0	0	100	90-100	50
	7-9	Loam,	MI, SM		0	0	100	100	65
		8		<u> </u>					
	9-80	Stratified sand SM,	SM, SP-SM	A-2-4	0	0	100	90-100	50
_		пe		_	_				
		loam to silt							
		loam, loamy							
		fine sand,							
		fine sand							
266A:									
Spot	0-2	Peat	PT	A-8	0	0	100	100	1
_	2-8	sand,	sand SP-SM, SM	A-3, A-2-4	• •	0	95-100		
_	8-10	fine	SP-S		0	0	95-100		
_	10-18	fine	SM,	-4,	0	0	95-100	90-100	
	18-80	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45
Finch	0-1	Moderately	PT	A-8	0	0	100	100	_ '
		decomposed		- —	_				
_		plant material		_	_				
_	1-11	Sand	SP, SP-SM		0	0	95-100	95-100   90-100	
_	11-42	Sand	SP, SP-SM		• •	0	95-100	95-100   90-100	
	42-80	Fine sand, sand	SP-SM, SP	A-2-4, A-3	0	0	95-100	90-100	50
267A:									
Finch	0-1	Moderately	PT	A-8	0	0	100	100	'
_		decomposed		. —	_				
		plant material							
	1-11	Sand	SP, SP-SM		0	0 (	95-100	95-100 90-100	45
	11-42	Sand   SP, SP		A-2-4, A-3	o 0	<b>5</b>	95-100	95-100 90-100	4 D
_	0 0 1 7 7	Fine Sand, Sand	SF-SM, SF		>	>	00T-C6	00 T - 00 T	0
_		_		_	_				_

Table 16. -- Engineering Index Properties -- Continued

Lodento ceM	100 C	רבון     מרמון	Classification	ication	Fragments	nents	Per	Percentage p	o G H
and soil name	) )				>10	3-10	1		
			Unified	AASHTO	inches inches	inches	4	10	
	In				Pct	Pct			
268C:									
Munising,		_			_		_		
calcareous									
dissected	0-1	Highly	PT	A-8	0	0	100	100	'
		decomposed							
		plant material					_		
_	1-3	Fine sandy loam	SM	A-4	0-3	8-0	90-100	85-95	55
	3-6	Fine sandy loam SM	SM	A-4	0-3	8-0	90-100 85-95	85-95	55
	6-23	Fine sandy loam	SM	A-4	0-3	8-0	90-100	85-95	55
	23-38	Loamy sand,	SM	A-4, A-2-4	0-3	8-0	90-100	85-95	35
		fine sandy							
_		loam							_
	38-50	Fine sandy	SM	A-2-4, A-4	0-3	8-0	001-06	85-95	35
		loam, loamy							
		sand		_	_		_		
	50-63	Gravelly fine	SC-SM	A-4, A-2-4	0-3	8-0	10-90	65-85	45
		sandy loam							
	63-80	Gravelly fine	SC-SM	A-2-4, A-4	0-3	8-0	10-90	65-85	45
		sandy loam							
Frohling,									
calcareous									
dissected	0-2	Highly	FT	A-8	0	0	100	100	_ '
		decomposed							
		plant material							
_	2-5	Fine sandy	SM	A-4, A-2-4	0	8-0	85-100	80-100	50
		loam, loamy			_		_		
		fine sand			_		_		
	5-24	Fine sandy loam	SM	A-4	0	8-0	85-100	80-100	50
	24-73	Fine sandy	SM	A-2-4, A-4	0	8-0	85-100 80-100	80-100	
		loam, loamy			_				
		fine sand							
	73-80	Gravelly fine	SM	A-2-4, A-4	0-3	3-15	55-95	20-90	45
		sandy loam 							

Table 16.--Engineering Index Properties--Continued

			Classif	Classification	Fragn	Fragments	Per	Percentage D	Ω
Map symbol	Depth	USDA texture					ū	sieve numb	, dmr
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	u.				Pct	Pct			
268C:									
Cookson,		_		_	_				
dissected	0-3	Slightly	PT	A-8	0	0	100	100	<u> </u>
		decomposed							
		plant material			_		_		
	3-7	Very fine sandy SM,	SM, ML	A-2-4, A-4	0	0 - 4	88-100   76-100	76-100	64
	_	loam, fine			_				
		sandy loam,			_		_		
		silt loam			_		_		
	7-11	Fine sandy	ML, SM	A-2-4, A-4	0	0-3	89-100 78-100	78-100	65
		loam, very			_		_		
		fine sandy			_		_		
	_	loam, silt			_				
	_	loam			_				
	11-16	Very fine sandy SM, ML	SM, ML	A-2-4, A-4	0	0-3	88-100   75-100	75-100	59
		loam, fine			_		_		
		sandy loam,			_		_		
		sandy loam,			_		_		
	_	silt loam			_				
	16-21	Fine sandy	ML, SM	A-4, A-2-4	0	0-3	88-100   75-100	75-100	59
	_	loam, sandy			_				
		loam, loamy			_		_		
		fine sand			_		_		
	21-31	Sandy clay	ML, SM	A-2-4, A-4	0	0-3	80-100   78-100	78-100	58
		loam, fine			_		_		
		sandy loam,			_		_		
		sandy loam,			_		_		
		silt loam			_		_		
	31-36	Loam, sandy	SM, ML	A-2-4, A-4	0	0-3	80-100 78-100	78-100	55
		loam, fine			_		_		
	_	sandy loam,			_				
		silt loam							
	36-80	Bedrock	-	-	-	-	-	-	_

Table 16. -- Engineering Index Properties -- Continued

In   In   In   In   In   In   In   In	Map symbol	Depth	USDA texture	Classif	Classification	Frag	Fragments	— —	Percentage p sieve numb	
In	and soil name	,				>10	3-10			
Ind,   Careous   Stratum,   Sected   0-2   Highly   PT   A-8   0   0   100				Unified	AASHTO	inches	inches	4	10	_
Sected		u				Pot	Pct			
um,  decomposed   2-5   Fine sandy   PT   A-8   0   0   100   100     2-5   Fine sandy   SM   A-4, A-2-4   0   0-8   85-100   80-100     2-5   Fine sandy   SM   A-4, A-4   0   0-8   85-100   80-100     2-5   Fine sandy   SM   A-2-4, A-4   0   0-8   85-100   80-100     2-5   Fine sandy   SM   A-2-4, A-4   0   0-8   85-100   80-100     3-4-73   Fine sandy   SM   A-2-4, A-4   0   0-8   85-100   80-100     3-5   Fine sandy   SM   A-2-4, A-4   0   0-8   85-100   80-100     3-6   Fine sandy   SM   A-2-4, A-4   0   0   0-8     3-7   Fine sandy   SM   A-2-4, A-4   0   0   0-8     3-8   Fine sandy   SM   A-2-4, A-4   0   0   0-8     3-8   Fine sandy   SM   A-3, A-2-4   0   0   0-100     3-9   Fine sandy   SM   A-3, A-2-4   0   0   0-100     3-10   Fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   0-100     3-10   Fine sand   SP, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SP-SM   A-2-4, A-3   0   0   0-100     3-10   Fine sand   SP-SM, SM, SM, SM, SM, SM, SM, SM, SM, SM,	769E:									
eous atum, ted 0-2 Highly   PT   A-8   0   0   100   100     A-6 composed	Frohling,		_		_	_	_			_
atum, ted	calcareous			_	_	_	_	_		_
ted 0-2 Highly   PT   A-8   0   0   100	substratum,		_	_	_	_				_
Plant material   Plant Plant Material   Plant Plant Material   Plant Plant Material   Plant Plant Material   Plant Plant Material   Plant Plant Material   Plant Plant Material   Plant Plant Material   Plant Plant Material   Plant	_		decomposed	_	_	_	_			_
2-5   Fine sandy   SM			plant material							_
Fine sand   Fine		2-5	Fine sandy	SM	A-4, A-2-4	0	8-0	85-100	80-100	50
Fine sandy   A-2   Fine sandy   SM   A-2-4, A-4   0   0-8   85-100   80-100     24-73   Fine sandy   SM   A-2-4, A-4   0   0-8   85-100   80-100     10-am, loamy   Fine sandy   SM   A-2-4, A-3   0   0-8   85-100   80-100     11-20   Sand, fine sand   SP, SP-SM   A-3, A-2-4   0   0   95-100   90-100     11-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     12-29   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     12-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     12-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     12-20   Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     12-20   Sand, fine sand   SP, SM, SP, SM, SP, SM, SP, SM   A-3, A-2-4   0   0   95-100   90-100     12-20   Sand, fine sand   SP, SM, SP, SM, SP, A-3, A-2, A-3   0   0   95-100   90-100     13-20   Sand, fine sand   SP, SM, SP, SM, SP, A-2, A, A-3   0   0   95-100   90-100     13-20   Sand, fine sand   SP, SM, SP, SM, SP, A-2, A, A-3   0   0   95-100   90-100     13-20   Sand, fine sand   SP, SM, SP, SM, SP, A-2, A, A-3   0   0   95-100   90-100     14-20   Sand, fine sand   SP, SM, SP, SM, SP, A-2, A, A-3   0   0   95-100   90-100     15-20   Sand, fine sand   SP, SM, SP, SM, SP, A-2, A, A-3   0   0   95-100   90-100     15-20   Sand, fine sand   SP, SM, SP, SM, SP, A-2, A, A-3   0   0   95-100   90-100     15-20   Sand, fine sand   SP, SM, SP, SM, SP, A-2, A, A-3   0   0   95-100   90-100     15-20   SP, SM, SP, SM, SP, SM, , SP, SM   A-2-4, A-3   0   0   0   0   0   0   0     10-20   Sand, fine sand   SP, SM, SP, SM   A-2-4, A-3   0   0   0   0   0   0   0     10-20   Sand, fine sand   SP, SM, SP, A-2-4, A-3   0   0   0   0   0   0     10-20   Sand, fine sand   SP, SM, SP, SM   A-2-4, A-3   0   0   0   0   0   0   0     10-20   Sand, fine sand   SP, SM, SP, SM   A-2-4, A-3   0   0   0   0   0   0     10-20   SAND, SM, SP, SM, SM, SP, SM, SM, SP, SM, SM, SP, SM, SM, SP, SM, SM, SP, SM, SM, SP, SM, SM, SP, SM, SM, SP, SM, SM, SP, SM, SM, SM, SM, SP, SM, SM, SM, SM, SM, SM, SM, SM, SM, SM	_		fine sand	_	_	_	_			_
24-73   Fine sandy   SM   A-2-4, A-4   0   0-8   85-100   80-100	_	5-24	Fine sandy loam	SM	A-4	0	8-0	85-100	80-100	5
fine sand   fine sand   A-2-4, A-4   A-3   S-5-95   S-90     red   O-2   Moderately   PT   A-8   A-3   A-3-4   D-3   B-3-15   S-95   S-90     cdcomposed   A-8   A-8   D-3   B-3   D-3   B-3   D-3   D-3     cdcomposed   A-8   D-3	_	24-73	Fine sandy	SM	A-2-4, A-4	0	8-0	85-100	80-100	5
73-80   Gravelly fine   SM   A-2-4, A-4   0-3   3-15   55-95   50-90     sandy loam	_		loam, loamy	_		_	_	_		_
73-80   Gravelly fine   SM   A-2-4, A-4   0-3   3-15   55-95   50-90     sandy loam	_		fine sand	_		_		_		_
ted 0-2 Moderately PT   A-8   0   0   100		73-80	Gravelly fine	SM	A-2-4, A-4	0-3	3-15	55-95	20-90	45
ted 0-2 Moderately   PT   A-8   0   0   100			sandy loam			_				
0-2   Moderately   PT   A-8   0   0   100   100   100	Garlic,									
decomposed	dissected	0-2	Moderately	PT	A-8	0	0	100	100	_
plant material	_		decomposed	_		_	_	_		_
Sand   SP, SP-SM   A-3   0   0   95-100   90-100     Fine sand, sand   SP, SP-SM, SM   A-3, A-2-4   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100     Sand, fine sand   SP-SM, SM, SP   A-2-4, A-3   0   0   95-100   90-100	_		plant material	_		_	_	_		_
Fine sand, sand   SP, SP-SM, SM   A-3, A-2-4   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-3, A-2-4   0   0   95-100   90-100     Sand, fine sand   SP, SM, SP-SM   A-2-4, A-3   0   0   95-100   90-100       Sand, fine sand   SP-SM, SM, SP   A-2-4, A-3   0   0   95-100   90-100	_	2-9	Sand	SP, SP-SM	A-3	0	0	95-100	90-100	45
Sand, fine sand  SP, SM, SP-SM A-3, A-2-4   0   0   95-100   90-100    Sand, fine sand  SP, SM, SP-SM A-2-4, A-3   0   0   95-100   90-100    Sand, fine sand  SP-SM, SM, SP A-2-4, A-3   0   0   95-100   90-100	_	9-11	Fine sand, sand		[A-3, A-2-4	0	0	95-100	90-100	4
Sand, fine sand SP, SM, SP-SM A-2-4, A-3   0   0  95-100 90-100   Sand, fine sand SP-SM, SM, SP A-2-4, A-3   0   0  95-100 90-100	_	11-20		SP, SM, SP-SM	[A-3, A-2-4	0	0	95-100	90-100	4
Sand, fine sand SP-SM, SM, SP A-2-4, A-3   0   0  95-100 90-100	_	20-29	Sand, fine sand	SP, SM, SP-SM	[A-2-4, A-3	0	0	95-100	90-100	45
	_	29-80	Sand, fine sand	SP-SM, SM, SP	A-2-4, A-3	0	0	95-100	90-100	45

Table 16. -- Engineering Index Properties -- Continued

		-							
Map symbol	Depth	USDA texture	Classif	Classification	Fragn	Fragments	Per	Percentage p sieve numb	P P
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	In				Pct	Pct			
269E:									
Cookson,				. —	_				
dissected	0-3	Slightly	PT	A-8	0	0	100	100	
		decomposed		_	_			_	
_		plant material		_	_			_	
_	3-7	Very fine sandy SM,	SM, ML	A-2-4, A-4	0	0 - 4	88-100   76-100	76-100	64
		loam, fine		_	_			_	
_		sandy loam,		_	_			_	
_		silt loam		_	_			_	
_	7-11	Fine sandy	ML, SM	A-2-4, A-4	0	0-3	89-100   78-100	78-100	65
_		loam, very		_	_				
		fine sandy		_	_			_	
_		loam, silt							
_		loam		_	_				
_	11-16	Very fine sandy SM,	SM, ML	A-2-4, A-4	0	0-3	88-100 75-100	75-100	59
		loam, fine		_	_			_	
		sandy loam,		_	_			_	
_		sandy loam,		_	_			_	
_		silt loam		_	_				
	16-21	Fine sandy	ML, SM	A-4, A-2-4	0	0-3	88-100   75-100	75-100	59
		loam, sandy			_		_	_	
_		loam, loamy		_	_	_	_	_	
_		fine sand			_	_	_	_	
	21-31	Sandy clay	ML, SM	A-2-4, A-4	0	0-3	80-100 78-100		58
_		loam, fine			_		_		
_		sandy loam,			_		_		
_		sandy loam,		_	_			_	
_		silt loam		_	_				
	31-36	Loam, sandy	SM, ML	A-2-4, A-4	0	0-3	80-100   78-100	78-100	55
_		loam, fine			_		_		
_		sandy loam,			_		_		
_		silt loam		_	_			_	
_	36-80	Bedrock	-	:	-	-	:	:	'
					_				

Table 16.--Engineering Index Properties--Continued

Map symbol	Denth	USDA texture	Classif	Classification	Fragn	Fragments	Per	Percentage p	е р
and soil name	1 14 1				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	In				Pct	Pct			
272C:									
Munising,									
substratum,									
dissected	0-1	Highly	ЪТ	A-8	0	0	100	100	
		aecomposea							
	1-3	Fine sandv loam	MS	A-4	0-3	8-0	90-100	85-95	5.5
	3-6		SM	A-4	0-3	0-8	90-100	85-95	55
	6-23	sandy		A-4	0-3	8-0	90-100	85-95	55
	23-38	sand,		A-4, A-2-4	0-3	8-0	90-100 85-95	85-95	35
		fine sandy							_
		loam							
	38-50	σ	SM	A-2-4, A-4	0-3	8-0	001-06	85-95	35
		Loam, Loamy							
	50-03	Granolly fine	מאַ	4 - C - K	~	α -	70-00	9	
	000	sandy loam	Wa Da		n 1	0	000	000	n #
	63-80	Gravelly fine	SC-SM	A-2-4, A-4	0-3	0-8	70-90	65-85	45
		sandy loam			)	) -	- — ) )		
									_
Yalmer,									
calcareous									
dissected	0-1	Highly	PT	A-8	0	0	100	100	1
		decomposed			_		_		_
		plant material		_	_				_
	1-2				0	0-3	81-97	16-97	57
	2-5	Loamy sand,	SM, SP-SM	A-2-4, A-3	0	0-3	81-97	76-97	57
							0		i
	9T-9	Sand, Loamy	WS.	A-2-4	>	5-0	96-67	74-96	- 54 -
	16 20	Duning of L	No	· ·			0 0 0	60	7
	0 1 1 1	11	E C	* - 7 - W	>	7	7000	16 - 70	0 ዞ — —
		gravelly sand							
	36.00	Topmir gand	N	A-7-4		9	0	0	у В
	0 1 0 1	fine sandy	M O	4-7-W-4-	1	) )	ם ה	0 0 0	ר ס
_									_
	36-62	Loamy sand,	SM	A-4, A-2-4	0-2	9-0	88-99	85-99	75
		fine sandy							_
		loam		_					_
	62-80	Loamy sand,	SM	A-2-4	0-2	9-0	66-82	59-79	52
		fine sandy		_	_				_
		loam		_	_		_		_
		_		_	_		_		_

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragn	Fragments	Per	Percentage p sieve numb	e dur
and soil name					>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	H				Pct	Pct			
272C:									
Frohling,		_			_		_		
calcareous									
a de la comita mita del la com		14: A	E	0	•	c	0	0	
ממפכיבשנייייי	0	decomposed	1 <u>4</u>	0 4	> 	>	9	9	
		plant material							
_	2-5	Fine sandy	SM	A-4, A-2-4	0	8-0	85-100 80-100	80-100	50
		loam, loamy							
		fine sand							
	5-24	Fine sandy loam		A-4	0	8-0	85-100	80-100	50
_	24-73	Fine sandy	SM	A-2-4, A-4	0	8-0	85-100	85-100 80-100	
_		loam, loamy				_	_		
		fine sand							
	73-80	Gravelly fine	SM	A-2-4, A-4	0-3	3-15	55-95	20-90	45
		sandy loam							
275B:									
Munising,									
calcareous									
substratum	0-1	Highly	PT	A-8	0	0	100	100	_
		decomposed							
	,	plant material							
	1-3	sandy		A-4	0-3	8-0	001-06	85-95	22
	3-6	Fine sandy loam		A-4	0-3	8-0	90-100	85-95	52
	6-23	Fine sandy loam	SM	A-4	0-3	8-0	90-100 85-95	85-95	55
	23-38	Loamy sand,	SM	A-4, A-2-4	0-3	8-0	90-100 85-95	85-95	35
		fine sandy					_		
		loam				_			
_	38-50	Fine sandy	SM	A-2-4, A-4	0-3	8-0	90-100 85-95	85-95	35
		loam, loamy							
_		sand							
	50-63	Gravelly fine	SC-SM	A-4, A-2-4	0-3	8-0	70-90	65-85	45
	,	sandy loam							
	63-80	Gravelly fine	SC-SM	A-2-4, A-4	0-3	æ - 0	06-07	65-85	45
		sandy loam							

Table 16. -- Engineering Index Properties -- Continued

								-	
Map symbol	Depth	USDA texture	Classii	Classilication	Fragments	lents	7 8 8	Percentage p sieve numb	e po
and soil name					>10	3-10			
			Unified	AASHTO	inches inches	inches	4	10	
	п				Pct	Pct			
275B:	0-3	Slightly	Ed	8-4		0	100	100	'
	,	decomposed	ı ı	) <u> </u>	,	,			
		plant material							
	3-7	Very fine sandy SM,	SM, ML	A-2-4, A-4	0	0 - 4	88-100   76-100	76-100	64
		loam, fine							
		sandy loam,							
		silt loam							
	7-11	w	ML, SM	A-2-4, A-4	0	0-3	89-100   78-100	78-100	65
		loam, very			_	_	_		
		fine sandy			_	_	_		
		loam, silt		_	_	_	_		
		loam			_	_	_		
	11-16	Very fine sandy SM, ML	SM, ML	A-2-4, A-4	0	0-3	88-100 75-100	75-100	59
		loam, fine			_	_	_		
		sandy loam,			_	_	_		
		sandy loam,		_	_				
		silt loam		_	_				
	16-21	Fine sandy	ML, SM	A-4, A-2-4	0	0-3	88-100 75-100	75-100	59
		loam, sandy			_	_	_		
		loam, loamy		_	_	_	_		
_		fine sand		_	_	_	_		
	21-31	clay	ML, SM	A-2-4, A-4	0	0-3	80-100   78-100	78-100	58
					_	_	_		
		sandy loam,							
		sandy loam,							
		silt loam		_	_	_	_		
	31-36	sandy	SM, ML	A-2-4, A-4	0	0-3	80-100 78-100	78-100	52
-		loam, fine							
		sandy loam,							
	,	silt loam							
	36-80	Bedrock	:	:	!	-	-	:	'
281E:									
Mongo, dissected	0-1	Slightly	PT		0	0	100	100	_
		decomposed					_		
		plant material							
	1-6	Silt loam		A-4	0	0	100	100	06
	6-22	Silty clay	CL, ML	A-7, A-4	0	0	100	100	90
		loam, silt			_	_	_		
		loam			_	_	_		
_	22-38	Silty clay	CH	A-7	0	0	100	100	95
	38-80	Stratified silt CL, ML	CL, ML	A-7, A-4	0	0	100	100	06
		loam to silt			_	_	_		
		to silty clay							
		loam							
_		_			_	_	_		_

Table 16. -- Engineering Index Properties -- Continued

				1					
Map symbol	Depth	USDA texture	Classification	cation	Fragments	nents	Per	Percentage p sieve numb	e p
and soil name			4	C E	>10	3-10	-	5	
	,		OHITHE	AASHIO	TICIE	TICITES	r	P	
	H				Pa 0	Pot			
Furlong	0-1	Moderately	PT	A-8	0	0	100	100	_ '
_		decomposed				_	_		_
		plant material							
	1-2	Sand	SM, S		0	0	95-100		45
	2-5	Loamy sand,	SM, SP, SP-SM A-3	A-3, A-2-4	0	0	95-100	95-100	
	L L		Š	,			7	000	
_	<b>/</b> = 0	sand	Sr-Sm, Sm, Sr	A-2, A-2-4	>	>		00T-C0	# 
	7-19	Loamy sand,	SP, SP-SM, SM	SM A-3, A-2-4	0	0	90-100	85-100	40
	19-22	Sand	SP, SP-SM	A-3	0	0	90-100	85-100	40
	22-80	Unweathered	-	:	-	-	-	-	_
		bedrock							
Shingleton	0-1	Loamy sand,	SM	A-2-4, A-3	0	0-5	92-100	85-100	47
		sand				_			
	1-7	Loamy sand,	SM	A-3, A-2-4	0	0-5	92-100	92-100 85-100	47
						_	_		
	7-8	Sand, loamy	SM	A-2-4, A-3	0	0-5	92-100	85-100	47
-	8-11	Sand, loamy	SM	A-2-4, A-3	0	0-5	92-100	-100 85-100	47
	;	sand							
	11-80	Unweathered	:	:	-	:	:		
		bedrock							
282D:									
Furlong	0-1	Moderately	PT	A-8	0	0	100	100	_
		decomposed				_	_		
		plant material				_	_		_
	1-2	Sand	SP-SM, SP	A-3	0	0	95-100		45
_	2-5	Loamy sand,	SM, SP, SP-SM A-3	A-3, A-2-4	0	0	95-100		45
		sand							_
	2-7	Loamy sand,	SP-SM, SM, SP	A-3, A-2-4	0	0	90-100	85-100	40
						_	_		_
_	7-19	Loamy sand,	SP, SP-SM, SM	SM A-3, A-2-4	0	0	90-100	85-100	40
_	0	sand						L	
	19-22	Sand	SP, SP-SM	A-3	0	0	90-100	90-100 85-100	40
	22-80	Unweathered	!	-	:	:	:	-	'
		Dearock							
_		_			_	_	_		_

Table 16. -- Engineering Index Properties -- Continued

Maga symbol   Depth   USDA texture   Doi: 1			_			Classification	ication	Fragn	Fragments	Pe	centage	Ωı
In   Commy sand,   SM   A-2-4, A-3   0   0-5   92-100   85-100   95-100		Depth	USDA	exture				-	0	u <sub>2</sub>	sieve n	dmn
In   In   In   In   In   In   In   In					Þ	hified	AASHTO	>10 inches	3-10 inches	4	10	_
11-80		п						Pct	Pct			
1-1   Loany and,   SM   A-2-4, A-3   0   0-5   92-100   85-100	282D:			,								
1-7   Loamy sand,   SM	Shingleton	T-0		and,	Si Si		-W	o 	6-0	92-100	00T-58	
1-8   Sand, loamy   SM   A-2-4, A-3   0   0-5   92-100   85-100		1-7		and,	SM			0	0-5	92-100	85-100	
11-80   Unweathered		1	_		2						0	
S=-11   Sand, loamy   SM		8-/		oamy	Si Si			o 	g-0	92-100	α Ω	
11-80   Unweathered		8-11		oamy	SM			0	0-5	92-100	85-100	47
11-80   Unweathered         Dedrock     drock   Dedroc			sand					_				
Den		11-80	Unweath	nered ''		:	!	-	!	-	1	'
Den	_											
	284B:							_				
Second Seed   Becomposed   Becomposed   Bell	Steuben	0-2	Moderat	ely	PT		A-8	0	0	100	100	_
1	_		decomp	posed				_				
Selection   Sele	_		plant	material				_	_			
8-16   Fine sandy loam   SM	_	2-8	Fine sa	undy loam	SM		A-4	0-3	8-0	90-100		
16-21   Fine sandy loam   SM   A-4   0-3   0-8   90-100   85-100     21-40   Fine sandy   SM   A-2-4, A-4   0-4   0-8   90-100   85-100     10-am, loamy   fine sand, loamy   SP-SM, SM   A-3, A-2-4   0   0   95-100   90-100     40-45   Sand, loamy   SP-SM, SM   A-3, A-2-4   0   0   95-100   90-100     45-80   Gravelly sand   SP   A-3   A-2   0   0   0   100   75-100     5-40   A-3   A-3   A-2-4   0   0   0   0   0   0   0     5-40   A-3   A-3   A-3   A-3   0   0   0   0   0   0     5-40   A-3   A-3   A-3   A-3   0   0   0   0   0   0     5-40   A-3   A-3   A-3   A-3   0   0   0   0   0   0     5-40   A-3   A-3   A-3   A-3   A-3   A-3   0   0   0   0     5-40   A-3   A-3   A-3   A-3   A-3   A-3   0   0   0   0     5-40   A-3   A	_	8-16	Fine sa		SM		A-4	0-3	8-0	90-100		
11-40   Fine sandy   SM   A-2-4, A-4   0-4   0-8   90-100   85-100     10-am, loamy   fine sand   fine sand   fine sand   sand   sand   decomposed   fine sand   decomposed   fine material   sand	_	16-21	Fine sa		SM		A-4	0-3	8-0	90-100		-
10am, loamy   15me sand   15		21-40	ŭ	ndy	SM			0 - 4	8-0	90-100		
40-45   Sand, loamy   SP-SM, SM   A-3, A-2-4   0   0   95-100   90-100     45-80   Gravelly sand,   SP   A-3   A-2-4   0   0   95-100   90-100     45-80   Gravelly sand,   SP   A-3   A-2-4   0   0   100   15-100     45-80   Gravelly sand,   PT   A-8   0   0   100   15-100     45-80   Highly   PT   A-8   0   0   0   100   100     5-70   Loamy sand   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100     5-70   Loamy sand,   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100     5-70   Sand   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-70   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-70   Loam, loamy   Inoam, loamy   Inoam, loamy   Inoam, loamd,   Inoam   Inoa				loamy								
40-45   Sand, loamy   SP-SM, SM   A-3, A-2-4   0   0   95-100   90-100     45-80   Gravelly sand,   SP   A-3   0-4   0-8   80-100   75-100     45-80   Gravelly sand,   SP   A-3   0-4   0-8   80-100   75-100       0-2   Highly   PT   A-8   0   0   100   100     2-7   Loamy sand   SM   SP-SM   A-1, A-3   0   0-8   90-100   85-100     5-7   Loamy sand,   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100     5-8   Sand   SAD-SM   A-1, A-3   0   0-8   90-100   85-100     5-8   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-8   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-8   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   90-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   90-100     5-9   Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   90-100     5-9   Sand, loamy   SM, SP-SM   SM, SP-SM		40-45		oamy	SP-SI			o 	0	95-100		
Sand		45-80	Gravell	v sand.	Q.		A-3	0 - 4	8-0	80-100	75-100	
0-2 Highly PT A-8 0 0 0 100 100 100 100 100 decomposed   A-2 4 0 0 0-8 90-100 85-100   Sand, loamy sand   SM, SP-SM   A-1, A-3   0 0-8 90-100 85-100   Sand, loamy   SM, SP-SM   A-1, A-3   0 0 0-8 90-100 85-100   Sand, loamy   SM, SP-SM   A-1, A-3   0 0 0-8 90-100 85-100   Sand, loamy   SM, SP-SM   A-3, A-2-4   0 0-8 90-100 85-100   S			sand	-			<u> </u>				<u>.</u>	
0-2 Highly PT A-8 0 0 100 100 100 100												
Decomposed   Decomposed   Decomposed   Decomposed   Decomposed   Decomposed   SM	Blue Lake	0-2	Highly		БД		A-8	0	0	100	100	1
Plant material   A-2-4			decomp	osed								
Loamy sand   SM   A-2-4   0   0-8   90-100   85-100     Sand   Loamy   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100     Sand   Sm, SP-SM   A-1, A-3   0   0-8   90-100   85-100     Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     Ioam, loamy   fine sand, fine sand, fine sand, fine sand, loam   fine sand, fine sa			plant	material								
Sand, loamy   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100     sand   Sand, loamy   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100     sand, sandy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100     sand, sandy   fine sand, fine sandy   fi		2-7		and	SM		A-2-4	0	8-0	90-100	85-100	
Loamy sand,   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100	_	7-9		oamy		SP-SM	A-	0	8-0	90-100	85-100	40
Loamy sand,   SM, SP-SM   A-1, A-3   0   0-8   90-100   85-100   sand	_		sand	_				_				
Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100   Sand, sandy   Ioam, loamy   fine sand, fine sand,   fine sandy   f		9-27		and,		SP-SM		0	8-0	90-100	85-100	40
Sand, loamy   SM, SP-SM   A-3, A-2-4   0   0-8   90-100   85-100   85-100   10am, loamy   fine sand, fine sand,   fine sand,   fine sandy   fine s												
n n		27-80		oamy		SP-SM		0	8-0	90-100	85-100	40
m m			sand,	sandy								
			loam,	loamy								
				and,								
				andy								
			TOGILL									

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Fragm	Fragments	Per	Percentage pa	ρQ .
Map symbol	Deptn	USDA texture			100	3-10	 	leve nu	amb e
			Unified	AASHTO	inches	inches	4	10	4
	H				Pct	Pct			
284B:									
Kalkaska	0-2	Sand	SM, SP-SM		0	0-3	95-100		40-
	2-6	Sand	SP-SM, SM		0	0-3	95-100		40-
_	9 - 9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100		40-
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100   40	40-
_	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100		40-
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100 40	40-
284D:									
Steuben	0-2	Moderately	PT	A-8	0	0	100	100	-
		decomposed							
		ıt mate							
	2-8	sandy		A-4	0-3	8-0	90-100	85-100	
	8-16	sandy		A-4	0-3	8-0	90-100	85-100	55-
_	16-21	Fine sandy loam		A-4	0-3	0-8	90-100		
	21-40	Fine sandy	SM	A-2-4, A-4	0 - 4	8-0	90-100	85-100	50-
	40-45	Sand, loamy	SP-SM, SM	A-3, A-2-4	0	0	95-100	5-100 90-100	45-
	!							- 1	
	45-80	Gravelly sand,	- SP	A-3	0 - 4	8-0	80-100	75-100	35-
Blue Lake	0-2	Highly	PT	A-8	0	0	100	100	-
_		decomposed		_	_		_		
		plant material	_		_		_		
	2-7				0	0 - 8	90-100	85-100	
	7 - 9	Sand, loamy	SM, SP-SM	A-1, A-3	0	0-8	90-100	85-100	40-
	9-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100	85-100	40-
						,		1	
	27-80	_	SM, SP-SM	A-3, A-2-4	0	8-0	001-06	90-100 85-100 40	40-
		sand, sandy							
		fine sand							
		100							
Kalkaska	0-2	Sand	SM, SP-SM		0	0-3	95-100		40-
_	2-6	Sand	SP-SM, SM		0	0-3	95-100		40-
	8 - 9	Sand	SM, SP-SM		0	0-3	95-100	85-100 40	40-
_	8-16	Sand			0	0-3	95-100		40-
	16-26	Sand			0	0-3	95-100	85-100	40-
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100 40	40-

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Fragments	nents	Per	Percentage p	Q
Map symbol	Depth	USDA texture			710	3-10		sieve m	qur
			Unified	AASHTO	inches	-н	4	10	
	H				Pot	Pct			
284E: Steuben	0-2	Moderatelv	Ξď	- K	0	0	100	100	'
		decomposed		- —					
					_				
	2-8	sandy		A-4	0-3	8-0	90-100	90-100 85-100	52
	8-16	sandy		A-4	0-3	8-0	90-100	85-100	55
	16-21	Fine sandy loam	SM		0-3	8-0	90-100		52
	21-40	Fine sandy	SM	A-2-4, A-4	0 - 4	8-0	90-100	85-100	20
		loam, loamy							
					-	-	1		,
_	40-45	Sand, Loamy	SP-SM, SM	A-3, A-2-4	o 	<b>&gt;</b>	95-100	001-06 001-66	4.5
	45-80	Gravelly sand,	Q.S	A-3	0 - 4	8-0	80-100	75-100	35
Blue Lake	0-2	Highly	PT	8-8	0	0	100	100	_ '
	I •	Z-1-G-1-			,	,			
		plant material							
	2-7	Loamy sand	SM	A-2-4	0	8-0	90-100	85-100	
	7-9	Sand, loamy	SM, SP-SM	A-1, A-3	0	8-0	90-100		40
					_				
-	9-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100 85	85-100	40
						-			
	27-80	_	SM, SP-SM	A-3, A-2-4	0	8-0	90-100 85	85-100	40
		sand, sandy							
		U							
		loam							
	,								
Kalkaska	0-2	Sand		A-2-4, A-3	0 0	e -0	95-100		
	0 0	Sand	SF-SM, SM	A-3, A-2-4	> c	n c	00T-C6	85-100	0 4
	0 0	Samo	ממי מני מני		> <	0 0	001-00		† <b>5</b>
	16-26	Sand			o c	0 0	95-100	85-100	4 4
	26-80	Sand			0	0-3	95-100	85-100	40
				. — .					
285B:	d		Ē				0	0	
напгасау	0 - 7	decomposed	T	φ- <del>- </del> - α	> 	>	0 O T	0 T	'
		plant material							
	2-9	Loamy sand,	SM, SP	A-2-4, A-3	0	0	90-100	85-100	40
		sand		_	_	_			
	9-10	Loamy sand,	SM, SP	A-2-4, A-3	0	0	90-100	90-100 85-100	40
	,	sand	ļ						_ :
	10-35 35-80	Sand	7 S D	A-3	o c	o c	90-100	90-100 85-100 40 90-100 85-100 40	40
_	0	מוומ	4 0	? <b>.</b> .	>	>	000	1	)  -  -
_		_		_	_	_			

Table 16.--Engineering Index Properties--Continued

Man symbol	Depth	USDA texture	Classification	ication	Fragi	Fragments	Pe	Percentage p	e p
and soil name	1 14 1)				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	uI				Pct	Pct			
285B:				· 					'
Kinross	0-3	Muck	PT	A-8	0	0	100	100	_
	3-14	Sand	SP-SM, SM	A-2-4, A-3	0	0	100	90-100	50
_	14-22	Sand	SP-SM	A-3	0	0	100	90-100 50	50
_	22-35	Sand	SP-SM	A-3	0	0	100	90-100 50	50
	35-80	Sand, fine sand	SP-SM	A-3	0	0	100	90-100 50	50
286B:									
Greylock	0-1	Moderately	PT	A-8	0	0	100	100	_
_		decomposed		_	_	_			
_		plant material			_				
_	1-6	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		fine sandy			_	_	_		
_		loam		_	_				
_	6-7	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	40
		fine sandy		_	_	_			
		loam, loamy			_	_	_		
_		sand			_	_			
	7-9	Fine sandy	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		loam, sandy	_		_	_	_		
		loam			_	_			
	9-19	Fine sandy	SM	A-2-4, A-4	0	0-15	90-100 85-95	85-95	50
		loam, sandy							
	6	Todalli Jose		· ·	-		0000	L C	
	101	fine conde	E .	F-G /F-7-G	) 	1	1	ה ה ה	) ዞ 
		loam loamy							
		sand							
	26-34	Sandy loam,	SM	A-2-4, A-4	0	0-15	90-100	85-95	40
		fine sandy							
		loam, loamy							
		sand			_				
_	34-80	Sandy loam,	SM	A-2-4, A-4	0	0-15	85-100 80-95	80-95	45
_		gravelly fine			_	_	_		
		sandy loam	_		_	_			
		_			_				_

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Fragn	Fragments	Per	Percentage	Q <sub>1</sub>
Map symbol	Depth	USDA texture			7	3-10	u	sieve numb	dmr
			Unified	AASHTO	inches	inches inches	4	10	
	uI				Pct	Pct			
286B:									
Cookson	0-3	Slightly	PT	A-8	0	0	100	100	_
_		decomposed		_					
_		plant material			_				
	3-7	Very fine sandy	SM, ML	A-2-4, A-4	0	0 - 4	88-100	88-100   76-100	64
		loam, fine			_				
		sandy loam,			_				
_		silt loam			_				
_	7-11	Fine sandy	ML, SM	A-2-4, A-4	0	0-3	89-100	89-100   78-100	65
_		loam, very			_				
		fine sandy							
		loam, silt		. —	_				
_		loam		_	_				
	11-16	Very fine sandy	SM, ML	A-2-4, A-4	0	0-3	88-100	88-100 75-100	59
		loam, fine			_				
		sandy loam,			_				
		sandy loam,				_			
_		silt loam			_				
	16-21	Fine sandy	ML, SM	A-4, A-2-4	0	0-3	88-100	88-100   75-100	59
		loam, sandy			_				
		loam, loamy				_			
		fine sand			_				
_	21-31	Sandy clay	ML, SM	A-2-4, A-4	0	0-3	80-100	80-100   78-100	58
_		loam, fine			_				
_		sandy loam,		_	_				
		sandy loam,							
		silt loam							
	31-36	Loam, sandy	SM, ML	A-2-4, A-4	0	0-3	80-100	80-100 78-100	55
_		loam, fine		_	_				
_		sandy loam,		_	_				
		silt loam							
	36-80	Bedrock	:	-	:	;	-	-	'

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	cation	Frag	Fragments	— —	Percentage p	e p umb
and soil name	1				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	H				Pct	Pct			
287B: McMaster	0-2	Highly	E-	80 - K	·	0	100	100	
	1	decomposed	- — !	1				: :	
		plant material	_						_
	2-4	Cobbly sandy	SM	A-2-4	0-3	10-30	70-95	06-59	35
	0	loam		7	· ·	6	о 1		
	1, 0	cobbiy todiny		F-7-W	n - -	00-01-	06-07	06-09-	٠ 
_	8-11	Cobbly sandy	SM	A-2-4	0-3	10-30	70-95	65-90	35
			_						_
	11-24	Very gravelly	GW-GM, SW-SM,	A-1	0-3	8-25	35-65	30-60	10
	24-39	Loamy sand  Very gravelly	SM GM, GW-GM	A-1	0-3	8-30	35-55	30-50	10
		coarse sand							
	39-80	Extremely	GW, GW-GM	A-1	0-3	15-30	25-35	20-30	- 5
		coarse sand							
Davies	0 - 4	Muck, very	PT	A-8	0	0	100	100	
	,	TOTAL STORY				,		1	
	4-11	Very gravelly sandy loam,	GM, SM	A-2-4, A-1	8 -0	15-44	40-70	35-65	_ 25
		very cobbly							
	11-80	Very gravelly	GP. SP	A-3. A-1	0-8	15-44	40-70	35-65	1.5
	; 	sand, very			) -				} 
		cobbly sand							
290A:									
Namur, very									
stony	0-3	Silt loam	MI.	A-4	0 0	0-5	85-100 80-95  85-100 80-95	80-95	75
	08-9	Bedrock	   	;		: ;			
Ruse, very stony	0-7	Mucky silt	SM, ML	A-4, A-2-4	0	0-15	85-100	75-100	45
		loam, mucky							
	7-11	Sandy loam	MI. SM	A-2-4 A-4	c	0-15	85-100	85-100 75-100	4 5
	<u> </u>				, 	}			
		loam							
	11-15		SM, ML	A-2-4, A-4	0	0-15	85-100	85-100 75-100	45
		tine sandy							
	15-80	Bedrock	-	:	:	-	;	-	
_		. —.	_						_

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classification	ication	Fragm	Fragments	Per	Percentage pa	≥ pa
and soil name	4				>10	3-10			
			Unified	AASHTO	inches	inches inches	41	10	4.
	п				Pct	Pct			
292B:									
Mashek, sandy		_		_	_	_	_	_	
substratum	9 - 0	Fine sandy loam	SM	A-4, A-2-4	8-0	0-8	90-100 85-95	85-95	55-
	6-11	Fine sandy	SM	A-2-4, A-4	8-0	8-0	90-100 85-95	85-95	40-
		loam, loamy				_		_	
_		sand		_	_				
	11-38	Fine sandy	SM	A-2-4, A-4	8-0	8-0	90-100	85-95	40-
		loam, loamy		_		_		_	
_		sand		_					
_	38-63	Gravelly fine	SM	A-2-4, A-4	8-0	0-30	70-95	06-59	45-
		sandy loam,							
		cobbly fine							
_		sandy loam		. —		_		_	
_	63-80	Very gravelly	SP-SM, GP-GM	A-1	8-0	0-23	45-65	40-60	20-
		sand							
296D:									
Islandlake	0-1	Slightly	PT	A-8	0	0	100	100	-
_		decomposed		_					
_		plant material		_					
_	1-2	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	96-100   90-100	45-
		sand			_	_		_	
	2-8	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-
_		sand		_	_				
	8 - 9	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100 45	45-
	41-80	Fine sand,	SP-SM, SM	A-2-4	0	0	96-100	90-100 45	45-
		loamy fine							
		sand, sand,				-		-	
					_				

Table 16.--Engineering Index Properties--Continued

						-			
Mon	7 7 4	4 40011	Classi	Classification	Fragi	Fragments	Ьел	Percentage p	ማ ት
and soil name	4				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	H				Pct	Pct			
296D:	•	7	E		c		6	0	
MCMlllan	T - 0	Moderately	T.A	8-8	>	> -	000	0 T	'
		plant material							
	1-4	Fine sandy loam SM,	SM, SC-SM	A-4	0	0-7	95-100	95-100 85-100	55
_	4-6	Fine sandy loam SM,	SM, SC-SM	A-4	0	0-7	95-100	85-100	55
	6-9	Very fine sandy	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	95-100 85-100	55
		loam, fine		_					
_		sandy loam		_		_			
_	9-16	Very fine sandy	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	5-100  85-100	55
_		loam, fine		_					
_		sandy loam		_					
	16-22	Loamy fine	SM, SP-SM,	A-2-4, A-3	0	0-7	90-100	90-100 85-100	50
_		sand, loamy	SC-SM	_		_			
_		sand		_		_			
_	22-32	Sand, fine sand	sand SM, SP-SM,	A-2-4, A-3	0	0-7	90-100	90-100 85-100	50
_		_	SC-SM			_			
_	32-80	Stratified sand	SC-SM, SM,	A-2, A-3, A-1	0	0-7	90-100	90-100 85-100	35
		to loamy sand	SP-SM						
296E:									
Islandlake	0-1	Slightly	PT	A-8	0	0	100	100	<u>'</u>
		decomposed		_					
_		plant material							
_	1-2	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	96-100   90-100	45
_		sand		_		_			
_	2-8	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	96-100   90-100	45
_		sand		_		_			
_	6-8	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	96-100   90-100	45
_		sand		_		_			
	9-41	Sand		A-2-4	0	0	96-100	96-100   90-100	
	41-80	Fine sand,	SP-SM, SM	A-2-4	0	0	96-100	96-100   90-100	45
		loamy fine							
		loamy sand							
				_					_

Table 16.--Engineering Index Properties--Continued

May a composite		1 AUST	Classif	Classification	Fragn	Fragments	Per	Percentage p	G t
	450	בפאבם בפאבם			>10	3-10	u	D > D T O	
			Unified	AASHTO	inches	inches	4	10	
	uI .				Pct	Pct			
296E:									
McMillan	0-1	Moderately decomposed	PT	A-8	0	0	100	100	1
		plant material		. —	_			_	
_	1-4	Fine sandy loam  SM,	SM, SC-SM	A-4	0	0-7	95-100	85-100	
_	4-6	Fine sandy loam  SM,	SM, SC-SM	A-4	0	0-7	95-100	95-100 85-100	55
	6-9	Very fine sandy	SC-SM, SM	A-2-4, A-4	0	0-7	95-100	85-100	55
		loam, fine			_	_	_		
		sandy loam			_	_	_		
	9-16	Very fine sandy	SM, SC-SM	A-4, A-2-4	0	0-7	95-100	85-100	55
_		loam, fine		_	_	_	_		
_		sandy loam			_	_		_	
_	16-22	Loamy fine	SM, SP-SM,	A-2-4, A-3	0	0-7	90-100	90-100 85-100	50
_		sand, loamy	SC-SM	_	_				
_		sand			_	_		_	
	22-32	Sand, fine sand	SM, SP-SM,	A-2-4, A-3	0	0-7	90-100	85-100	50
		_	SC-SM		_	_			
	32-80	Stratified sand	sand SC-SM, SM,	A-2, A-3, A-1	0	0-7	90-100	90-100 85-100 35	35
		to loamy sand	SP-SM						
297B:									
Rubicon,									
severely burned	0-3	Sand	SM, SP, SP-SM	SP-SM A-2-4, A-3	0	0	95-100	75-100	35
_	3-28	Sand	SM, SP, SP-SM	SP-SM A-2-4, A-3	0	0	95-100	95-100 75-100 35	35
	28-36	Sand, coarse	SM, SP, SP-SM	SP-SM A-1, A-2-4,	0	0	95-100	95-100   75-100	35
		sand		A-3	_	_			
	36-80	Sand, coarse	SM, SP, SP-SM	SP-SM A-1, A-2-4,	0	0	95-100	95-100 75-100 35	35
		sand		A-3					
297D:									
Rubicon,				. —	_			_	
severely burned	0-3	Sand	SM, SP, SP-SM	SP-SM A-2-4, A-3	0	0	95-100	95-100   75-100	35
	3-28	Sand	SM, SP, SP-SM	SP-SM A-2-4, A-3	0	0	95-100	95-100 75-100	35
	28-36	Sand, coarse	SM, SP, SP-SM	SP-SM A-1, A-2-4,	0	0	95-100	95-100 75-100	35
		sand		A-3	_	_	_	_	
_	36-80	Sand, coarse	SM, SP, SP-SM	SP-SM A-1, A-2-4,	0	0	95-100	95-100 75-100 35	35
		sand		A-3	_				

Table 16.--Engineering Index Properties--Continued

		-	Classif	Classification	Fragn	Fragments	Per	Percentage p	Ω,
and soil name	Depth	USDA texture			>10	3-10	og.	sieve numb	QWIT
			Unified	AASHTO	inches	inches inches	4	10	
	ų.				Pct	Pct			
298B:	,								
Wurtsmith	T-0	Moderately	PT	A-8	0	0	100	T 0 0	1
		decomposed   plant material							
-	1-4	Loamy sand,	SM, SP	A-2-4, A-3	0	0	85-100	85-100 80-100	35
_		sand		. —	_		_		
	4-24	Sand, coarse	SP-SM, SP	A-3, A-1	0	0	85-100	85-100 80-100	35
	24-80	Coarse sand,	SP, SP-SM	A-1, A-3	0	0	85-100	80-100	35
_					_	_			
Do ford	4-0	, , , , , , , , , , , , , , , , , , ,	E-Q	α		c	00	0	
	4-80	Fine sand, sand SM,	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	w	- 4
					_				
299F:				_	_		_		
Shelldrake	0-1	Slightly	PT	A-8	o _	0	100	100	1
		decomposed			_				
		plant material			_				
	1-3	Highly			0	0	100	100	Н
		decomposed			_				
		plant material			_				
	3-4	Sand		A-3	0	0	100	100	20
	4-80	Sand	SP, SP-SM	A-3	o 	0	100	100	50
300F:									
Shelldrake	0-1	Slightly	PT	A-8	0	0	100	100	1
_		decomposed	_	_	_				
		plant material		_	_	_			
_	1-3	Highly		_	0	0	100	100	1
_		decomposed		_	_	_			
		plant material			_				
	3-4	Sand	SP, SP-SM	A-3	0	0	100	100	50
	4-80	Sand	SP-SM, SP	A-3	0	0	100	100	50
ָרָנָי ניני									
Dune rama.									

Table 16. -- Engineering Index Properties -- Continued

				Classification	Cation	Frace	Fragments	Der	Percentage	5
Map symbol	Depth	USDA texture	)			3			sieve numb	dmr dmr
and soil name						>10	3-10			
			Unified	ied	AASHTO	inches	inches	41	10	
	H					Pct	Pct			
301F: Cookson,										
dissected	0-3	Slightly	PT		A-8	0	0	100	100	
		decomposed								
		plant material								
	3-7		SM, ML		A-2-4, A-4	0	0 - 4	88-100 76-100	76-100	64
		loam, rine								
		sandy Loam,								
	7-11	Fine gandin	MI		4 - C - K	c	,	001-86 001-88	100	L L
	1	loam, verv				<b>o</b>	0	1	9	)
		loam, silt								
									-	
	11-16	Very fine sandy SM,	SM, ML	_	A-2-4, A-4	0	0-3	88-100 75-100	75-100	59
		loam, fine								
	16-21	Fine sandy	ML, SM		A-4, A-2-4	0	0-3	88-100 75-100	75-100	59
		loam, sandy								
		ĽΩ								
	21-31	Sandy clay	ML, SM		A-2-4, A-4	0	0-3	80-100 78-100	78-100	58
		loam, fine		_		_		_	_	
		sandy loam,								
		sandy loam,		_		_			_	
		silt loam		_	_			_		
	31-36		SM, ML	_	A-2-4, A-4	0	0-3	80-100	78-100	55
		loam, fine		_		_		_	_	
		sandy loam,		_				_	_	
		silt loam		_		_		_		
	36-80	Bedrock	; 	!	-	:	-	:	:	_
National Control										
7 1000		77	2			c	c	1	000	n c
dissected	0 - 4		ZW, ML		A-2-4, A-4	>	>	001-08 001-68	001-08	20
		sanay roam								
-	4-14	Very fine sandy ML,	ML, SM	_	A-2-4, A-4	0	0 - 4	85-100	80-95	20
				_						
		sandy loam		_		_		_		
	14-25	Weathered	; _		:	:	;	-	:	<u>'</u>
		bedrock						_	_	
	25-80	Unweathered	:		:	:	:	-	:	<u>'</u>
		bedrock			_	_				
_		_		_	_			_	_	

Table 16. -- Engineering Index Properties -- Continued

Map symbol	Depth	USDA texture	Classif	Classification	Fragi	Fragments	Per	Percentage p	d m
and soil name	1 1 1	9			>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	In				Pct	Pct			
302B:									
Dillingham	0-1	Moderately	PT	A-8	0	0	100	100	'
		decomposed			_			_	
		plant material			_				
	1-8	Loamy sand,	SM	A-2-4	0	0-7	95-100	95-100   85-100	40
		loamy fine					_	_	
	_	sand		_	_	_	_		
	8-11	Loamy fine	SP-SM, SM	A-2-4, A-4	0	0-7	95-100 85-100	85-100	40
	_	sand, loamy		_	_	_	_		
	_	sand		_	_	_			
	11-21	Loamy fine	SP-SM, SM	A-2-4, A-4	0	0-7	95-100	95-100   85-100	40
	_	sand, loamy		_	_	_	_		
	_	sand		_	_	_			
	21-31	Loamy sand,	SP-SM, SM	A-4, A-2-4	0	0-7	95-100	85-100	40
	_	sandy loam,		_	_	_	_	_	
	_	sand		_	_	_			
	31-80	Stratified	SP-SM, SM	A-4, A-2-4	0	0-7	95-100	95-100   85-100	40
	_	loamy sand to		_	_	_	_		
	_	loamy fine		_	_	_	_		
		sand to sand							
;			1				1	1	,
Kalkaska	0-2	Sand	SM, SP-SM	A-Z-4, A-3	o _	0-3	00T-66	00T-88   00T-86	40
	2-6	Sand	SP-SM, SM	A-2-4, A-3	o —	0-3	95-100	95-100 85-100	40
	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100  85-100  40	40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100  85-100  40	40
				_					

Table 16. -- Engineering Index Properties -- Continued

			Classi	Classification	Fragi	Fragments	Per	Percentage p	Ω
Map symbol	Depth	USDA texture			7	3-10	to.	sieve numb	dmı
			Unified	AASHTO	inches	inches inches	4	10	
	п				Pct	Pct			
Jozn: Dillingham	0-1	Moderately	PT	A-8	0	0	100	100	'
		decomposed							
		plant material			_				
	1-8	Loamy sand,	SM	A-2-4	0	0-7	95-100	95-100 85-100	40
_		loamy fine	_	_	_				
		sand		_	_		_	_	
	8-11	Loamy fine	SP-SM, SM	A-2-4, A-4	0	0-7	95-100	95-100 85-100	40
		sand, loamy			_				
		sand							
	11-21	Loamy fine	SP-SM, SM	A-2-4, A-4	0	0-7	95-100	95-100 85-100	40
_		sand, loamy		_	_				
		sand		_				_	
_	21-31	Fine sand,	SP-SM, SM	A-4, A-2-4	0	0-7	95-100	95-100 85-100	40
		loamy fine		_	_			_	
		sand, sand,		_				_	
_		loamy sand		_	_			_	
_	31-80	Sand,	SP-SM, SM	A-4, A-2-4	0	0-7	95-100	95-100 85-100	40
		stratified						_	
_		sand to loamy		_	_				
_		sand	_	_	_		_	_	
_					_	_	_		
Kalkaska	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
_	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
_	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100  85-100  40	40
_	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100  85-100  40	40
			_	_	_	_			

Table 16. -- Engineering Index Properties -- Continued

May avmbol	Denth	TISDA texture	Classif	Classification	Fragm	Fragments	Per	Percentage p	Q E
and soil name	1 1 1				>10	3-10	1		
			Unified	AASHTO	inches inches	inches	4	10	
	In				Pct	Pct			
302E:									
Dillingham	0-1	Moderately	PT	A-8	0	0	100	100	1
_		decomposed	_		_				
		plant material	_	_	_				
	1-8	Loamy sand,	SM	A-2-4	0	0-7	95-100	95-100   85-100	40
_		loamy fine			_			_	
_		sand	_		_		_	_	
	8-11	Loamy fine	SP-SM, SM	A-2-4, A-4	0	0-7	95-100	95-100   85-100	40
_		sand, loamy	_		_				
_		sand			_				
	11-21	Loamy fine	SP-SM, SM	A-2-4, A-4	0	0-7	95-100	95-100   85-100	40
_		sand, loamy	_		_				
_		sand	_	_	_			_	
_	21-31	Fine sand,	SP-SM, SM	A-4, A-2-4	0	0-7	95-100 85-100	85-100	40
_		loamy fine	_		_				
_		sand, sand,		_	_				
_		loamy sand	_		_				
_	31-80	Sand,	SP-SM, SM	A-4, A-2-4	0	0-7	95-100	95-100   85-100   40	40
_		stratified	_		_				
_		sand to loamy	_		_				
		sand							
(1) (A)	c	7 1	W.0	~ ~ ~	_		100 PE		,
Naihasha	0 - 2	parid	mc-ac 'mc		>	2	00T-C6	001-00	) H
_	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100  85-100  40	40
_	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
_	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
				_					

Table 16. -- Engineering Index Properties -- Continued

Man by Symbol   Depth   USDA teature   Diffied   AASSTYO   1 mohes   1 moh				Classif	Classification	Fragments	nents	Pe	Percentage	Q
Inches   I		Depth						u <sub>2</sub>	sieve nu	1mb
Ingham				Unified	AASHTO	>10 inches	3-10 inches	4	10	
11-21   Moderately   PT   A-8   0   0   100		п				Pct	Pct			
1-8	02F: Dillingham	0-1	Moderately	PT	A-8	0	0	100	100	'
1-8   Loamy fine	1		decomposed							
1-8   Loamy fine   SP-SM, SM   A-2-4, A-4   0   0-7   95-100   85-100			ш							
S-11   Loamy files   SP-SM, SM   A-2-4, A-4   0   0-7   95-110   85-110		1-8	01	SM	A-2-4	0	0-7	95-100	85-100	40
11-21   Loamy fine   SP-SM, SM   A-2-4, A-4   0   0-7   95-100   85-100     Sand, loamy fine   SP-SM, SM   A-4, A-2-4   0   0-7   95-100   85-100     Sand, loamy fine   SP-SM, SM   A-4, A-2-4   0   0-7   95-100   85-100     Sand, sand, sand, sand, sand   SP-SM, SM   A-4, A-2-4   0   0-7   95-100   85-100     Sand, sand, sand   SP-SM, SM   A-4, A-2-4   0   0-7   95-100   85-100     Sand coloamy fine   SP-SM, SM   A-4, A-2-4   0   0-7   95-100   85-100     Sand coloamy fine   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand coloamy fine   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand   SP-SM, SM   A-2-4, A-3   0   0-7   95-100   85-100     Sand   SP-SM, SM   A-2-4, A-3   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-3   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   60-100     SP-SM, SM   A-2-4, A-4   0   0-8   65-100   6										
11-21   Loamy file   SP-SM, SM   A-2-4, A-4   0   0-7   95-100   85-100	_	8-11				0	0-7	95-100	85-100	40
11-21   Loany fine   SP-SM, SM   A-2-4, A-4   0   0-7   95-100   85-100		! !	١.			,				ì
11-21   Loamy fine   SP-SM, SM   A-2-4, A-4   0   0-7   95-100   85-100										
Sand, loamy   SP-SM, SM   A-4, A-2-4   0   0-7   95-100   85-100     10amy fine		11-21				0	0-7	95-100	85-100	40
aska									_	
### Series		,	sand				1	L	, c	,
Sand, Sand, Sand,   SP-SM, SM   A-4, A-2-4   0   0-7   95-100   85-100		ZI-3I	Fine sand,			>	/-0	00T-66	00T-68	4
31-80   Sand,   SP-SM, SM   A-4, A-2-4   0   0-7   95-100   85-100   seratified   sand to loamy   5-100   85										
31-80   Sand, stratified   SP-SM, SM   A-4, A-2-4   0   0-7   95-100   85-1										
aeka  0-2 Sand to loamy  2-6 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100  8-16 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100  16-26 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100  16-26 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100  16-26 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100  26-80 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100  26-80 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100  16-26 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100  26-80 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100  16-26 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100  26-80 Sand SP-SM, SM A-2-4, A-4 0 0-8 65-100 60-100  10-27 Sand Sand, SM A-2-4, A-4 0 0-8 65-100 60-100  10-28 Sand, Sand SP A-2-4, A-4 0 0-8 65-100 60-100  23-80 Stratfied sand SP A-1, A-3 0 0-40 40-100 35-100  23-80 Stratfied sand SP A-1, A-3 0 0-40 40-100 35-100  23-80 Stratfied sand SP A-1, A-3 0 0-40 40-100 35-100  23-80 Stratfied sand SP A-1, A-3 0 0-40 40-100 35-100	_	31-80	3			0	0-7	95-100	85-100	40
aska			stratified							
aska										
aska			sand							
2-6 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100 8-16 Sand SP-SM, SM A-2-4, A-3 0 0-3 95-100 85-100	Kalkaska	0-2	Sand	Ç.		0	0-3	95-100	85-100	4 0
5-8   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     16-26   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     10-am, fine   Sandy loam   A-2-4, A-4   0   0-8   65-100   60-100     15-23   Gravelly sand   SM   A-2-4, A-3   0   0-15   50-100   45-100     15-23   Gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-23   Gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-24   Sandy sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-25   Gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-26   Sandy sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-25   Gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-26   Sandy sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-26   Sandy sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-27   Gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-28   Gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-29   Stratified sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-29   Stratified sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-29   Stratified sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-29   Stratified sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-29   Stratified sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-29   STRATIFIED   SP   A-1, A-3   0   0-40   40-100   35-100     15-29   STRATIFIED   SP   A-1, A-2   0   0-40   40-100   35-100     15-29   STRATIFIED   SP   A-1, A-2   0   0-40   40-100   35-100		2 0	2 2 2			· c	0 0	95-1-70		40
8-16   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     16-26   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     10-am, fine   Sandy loam   A-2-4, A-4   0   0-8   65-100   60-100     3-6   Fine sandy   SM   A-2-4, A-4   0   0-8   65-100   60-100     15-23   Gravelly sand   SP   A-3, A-2-4   0   0-8   65-100   60-100     15-23   Gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-24   CP-PR	_	9 8-	Sand			0	0 -0	95-100		40
16-26   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100		8-16	Sand			0	0-3	95-100	85-100	40
26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100		16-26	Sand			0	0-3	95-100	85-100	40
10am, fine   A-2-4, A-4   0   0-8   65-100   60-100     10am, fine   Sandy   SM   A-2-4, A-4   0   0-8   65-100   60-100     3-6   Fine sandy   SM   A-2-4, A-4   0   0-8   65-100   60-100     10am, fine   Sandy   SM   A-2-4, A-4   0   0-8   65-100   60-100     15-23   Gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-23   Gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     15-24   A-4   A		26-80	Sand			0	0-3	95-100		
10am, fine   A-2-4, A-4   0   0-8   65-100   60-100     sandy loam   A-2-4, A-4   0   0-8   65-100   60-100     sandy loam   A-2-4, A-4   0   0-8   65-100   60-100     sand   Sandy loam   Fine   Sandy loam     sand	, i									
10am, fine   A-2-4, A-4   0   0-8   65-100   0-100     sandy loam   A-2-4, A-4   0   0-8   65-100   0-100     sand   sand   A-2-4, A-4   0   0-8   65-100   0-100     sandy loam   sand, sand   SP   A-1, A-3   0   0-40   40-100   35-100     to very   to gravelly sand   sand	USB:	9	The will ower D	N.		c	α .	65-100	001-09	ر. ب
Fine sandy loam   A-2-4, A-4   0   0-8   65-100   60-100     Loam, loamy   SM   A-2-4, A-4   0   0-8   65-100   60-100     Loam, fine   A-2-4, A-4   0   0-8   65-100   60-100     Loam, fine   A-3, A-2-4   0   0-15   50-100   45-100     Sandy loam   A-3, A-2-4   0   0-15   50-100   45-100     Stratified sand   SP   A-1, A-3   0   0-40   40-100   35-100     Lo very   Gravelly   Sand   SP   A-1, A-3   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-3   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   SP   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   A-1, A-2   0   0-40   40-100   35-100     Lo gravelly sand   A-1, A-2   0   0-40   40-100   40-100   40-100     Lo gravelly sand   A-1, A-1, A-2   0   0-40   40-100   40			loam, fine	= = =		> 		1	9	ו
Fine sandy   SM   A-2-4, A-4   0   0-8   65-100   60-100     Loam, loamy   sand   A-2-4, A-4   0   0-8   65-100   60-100     Gravelly sandy   SM   A-2-4, A-4   0   0-8   65-100   60-100     Loam, fine   Sandy loam   A-3, A-2-4   0   0-15   50-100   45-100     Stratified sand   SP   A-1, A-3   0   0-40   40-100   35-100     Lo very   Gravelly   SAND   A-1, A-3   A-1, A-3   A-1, A-3   A-1, A-3   A-1, A-3   A-1, A-3   A-1, A-3   A-1, A-3   A-1, A-3   A-1, A-3   A-1, A-1, A-3   A-1, A-1, A-1, A-1, A-1, A-1, A-1, A-1,			sandy loam							
loam, loamy   sand		3-6	Fine sandy	SM	-4,	0	8-0	65-100	9	35
Sand   A-2-4, A-4   0   0-8   65-100   60-100     Loam, fine	_				_	_				
Gravelly sandy   SM   A-2-4, A-4   0   0-8   65-100   60-100     Loam, fine	_				_	_			_	
Loam, fine   Sandy loam   A-3, A-2-4   0   0-15   50-100   45-100   A-1, A-3   A-1, A-3   0   0-40   A-100		6-15		SM		0	8-0	65-100	001-09	35
Sandy loam   SP   A-3, A-2-4   0   0-15   50-100   45-100     Statistical sand   Statis			loam, fine							
Gravelly loamy   SP		L	sandy roam			•	ı			L
Stratified sand   SP   A-1, A-3   0   0-40   40-100   35-100   to very   gravelly sand   to gravelly   sand   sand   sand   sand   sand	_	T5-23	Gravelly loamy	4 N		o	0-T2	00T-09	45-T00	25
to very gravelly sand sand sand	_	03-80	Gtratified gand	Q.D		_	0.40	40-100	35-100	1
111y ave]	_	9	to wery	<u> </u>		>	1	) 		H
(a 1 )			gravelly gand							
gand	_		to gravelly							
	_		sand							
					- —					

Table 16. -- Engineering Index Properties -- Continued

Man avmhol		TSDA text	Classif	Classification	Fragn	Fragments	Per	Percentage p	G m
and soil name	: 24 24 24 24 24 24 24 24 24 24 24 24 24				>10	3-10			
			Unified	AASHTO	inches	inches inches	4	10	
	년 				Pct	Pct			
303B:									
Trenary	0-2	Silt loam,	SM, ML	A-4, A-2-4	0	0-5	90-100	90-100 85-100 50	50
	_	sandy loam,	_		_				
		fine sandy	_	_	_				
		loam, very		- —	_		_		
		fine sandy	_	_	_				
		loam	_	_	_				
	2-6	Fine sandy	MI, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	55
		loam, silt	_	_	_				
		loam, very		_	_				
	_	fine sandy	_	_	_				
		loam	_						
	6-12	Fine sandy	ML, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	55
	_	loam, sandy	_	_	_				
		loam, very			_				
		fine sandy			_				
	_	loam	_	_	_				
	12-17	Fine sandy	ML, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	55
		loam, very	_	_	_		_		
		fine sandy			_		_		
		loam			_		_		
	17-26	Sandy loam,	SM	A-4	0 - 4	8-0	90-100	85-95	40
		loamy sand			_		_		_
	26-37	Sandy clay	SC, SM	A-6, A-4	0 - 4	8-0	90-100 85-95	85-95	55
		loam, fine			_				
		sandy loam			_				
	37-80	Sandy loam,	SM	A-4	0 - 4	0-20	70-95	65-90	40
		gravelly fine			_		_		
		sandy loam,		_	_		_		
		cobbly fine			_				
		sandy loam		_	_		_		
		_		_					

Table 16. -- Engineering Index Properties -- Continued

Man symbol	Denth	USDA texture	Classif	Classification	Fragments	nents	Ред	Percentage p	d e
and soil name	1 14 1)				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	
	п				Pct	Pct			
303D: Kiva	0 - 3	Gravelly sandy	SM	A-2-4, A-4	0	8-0	65-100	60-100	35
-		loam, fine	· <del></del> -						
	9	sandy loam	2	, ,		0	200	001	0
	0 1	loam, loamy	EG	+-W '+-7-W	>	0	00 T - C 0	00 T = 00	
		sand			_				
_	6-15	Gravelly sandy	SM	A-2-4, A-4	0	8-0	65-100	65-100 60-100	35
		sandy loam							
	15-23		SP	A-3, A-2-4	0	0-15	20-100	50-100   45-100   25	25
		sand, sand				;			
	23-80	Stratified sand	- SP	A-1, A-3	0	0-40	40-100	40-100 35-100 10	10
		gravelly sand							
		to gravelly							
		sand							
Trenary	0-2	Silt loam,	SM, ML	A-4, A-2-4	0	0 - 5	90-100	85-100	50
-		sandy loam,	. —		_		_		
		loam, very							
		Tine sandy							
	c	Loam			•	c		0	<u> </u>
	7 - 6	Fine sandy	ML, SM	A-4	0 – 4 4 – 0	8-0	00T-06	85-95	22
		fine sandv							
		loam							
	6-12	Fine sandy	ML, SM	A-4	0 - 4	8-0	90-100	85-95	55
		loam, very							
		fine sandy							
	12-17	Fine sandv	MI. SM	A-4	0 - 4	0-8	90-100	85-95	5.5
		loam, very		<u> </u>					
		fine sandy			_				
		loam							
	17-26	Sandy loam,	SM	A-4	0 - 4	8-0	001-06	85-95	40
	,	loamy sand				,			_ :
	26-37	Sandy clay	SC, SM	A-6, A-4	0 - 4	8-0	00T-06	85-95	55
	37-80	Sandy loam,	SM	A-4	0 - 4	0-20	70-95	06-59	40
		gravelly fine							
		sandy loam,							
		cobbly ine							
		import & primary							
-		_	_	_	_		_		

Table 16. -- Engineering Index Properties -- Continued

			Classif	Classification	Fragments	ents	Per	Percentage	Ω
Map symbol	Depth	USDA texture						sieve numb	, dmr
and soil name			1 1 1 1 1 1 1	C E	>10	3-10		5	
	Ę		500	OTHERN	1000	1000	r I	P	
6 6	Ħ				74 D	2			
Kiva	0-3	Gravelly sandy	SM	A-2-4, A-4	0	8-0	65-100	65-100   60-100	35
		loam, fine							
		sandy loam		_					
_	3-6	Fine sandy	SM	A-2-4, A-4	0	8-0	62-100	65-100   60-100	35
_		loam, loamy		_	_				
_		sand			_		_		
_	6-15	Gravelly sandy	SM	A-2-4, A-4	0	8-0	62-100	65-100   60-100	35
		loam, fine		_					
_		sandy loam		_					
	15-23	Gravelly loamy	SP	A-3, A-2-4	0	0-15	50-100	50-100   45-100	25
_		sand, sand			_				
_	23-80	Stratified sand	SP	A-1, A-3	0	0-40	40-100	35-100	10
_		to very							
_		gravelly sand		_					
		to gravelly		_					
		sand							
Trenary	0-2	Silt loam.	SM. MI	A-4. A-2-4	0	0-5	90-100	90-100 85-100	50
7		sandy loam.			,	,			
		fine sandy							
		loam, very							
_		loam					_		
	2-6		ML, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	52
_		loam, very							
_		fine sandy		_	_				
_		loam			_		_		
	6-12		ML, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	52
		Loam, very							
_		line sandy							
	12-17	Fine sandv	MI, SM	A-4	0 - 4	8-0	90-100 85-95	85-95	55
		loam, very		! !					
		fine sandy							
	17-26	Sandy loam,	SM	A-4	0 - 4	8-0	90-100 85-95	85-95	40
		loamy sand							
_	26-37	Sandy clay	SC, SM	A-6, A-4	0 - 4	8-0	90-100	85-95	55
_		loam, fine			_				
		sandy loam			_				
	37-80	Sandy loam,	SM	A-4	0 - 4	0-20	70-95	65-90	40
		sandy loam,							
		cobbly fine							
		sandy loam							
_					_		_		

Table 16. -- Engineering Index Properties -- Continued

Lodomer	, 1 1	4	Classification	ication	Fragn	Fragments	Per	Percentage p	σ <del>,</del>
and soil name	400	91000			>10	3-10	u	0.010	
			Unified	AASHTO	inches	inches inches	4	10	
	In				Pct	Pct			
305B:									
Wurtsmith	0-1	Moderately	PT	A-8	0	0	100	100	1
-		decomposed							
	,	ъ			•	•	-		_ (
	T-4	Loamy sand,	SM, SP	A-2-4, A-3	0	0	85-100	85-100 80-100	35
		sand					_		
_	4-24	Sand, coarse	SP-SM, SP	A-3, A-1	0	0	85-100	85-100 80-100	35
		sand					_		
	24-80	Coarse sand,	SP, SP-SM	A-1, A-3	0	0	85-100	5-100   80-100	35
		sand							
Meehan	0-3	Moderately	PT	A-8	0	0	100	100	
		decomposed							
		plant material							
	3-5	Loamy sand,	SM, SP	A-2-4, A-3	0	0	85-100	5-100 80-100	35
		sand					_		
	5-28	Sand, coarse	SP-SM, SP	A-3, A-1	0	0	85-100	85-100 80-100	35
_	28-80	Coarse sand,	SP, SP-SM	A-1, A-3	0	0	85-100	85-100 80-100	35
306C:									
Deerton,						_			
dissected	0-1	Highly	PT	A-8	0	0	100	100	_
		decomposed							
		plant material				_	_		
	1-9	Sand	SP-SM, SP	A-3	0	0-5	85-100	85-100   80-100	
	9-10	Loamy sand,	SP, SM, SP-SM	SP-SM A-2-4, A-3	8-0	0-15	70-100	70-100   65-100	35
		channery sand,							
		sand				_			
	10-25	Channery sand,	SP-SM, SM, SP	SP A-3, A-2-4	8-0	0-15	70-100	70-100 65-100	35
		loamy sand,					_		
		sand				_	_		
	25-39	Weathered	;	:	-	:	-	:	_
		bedrock					_		
	39-80	Unweathered	:	:	-	-	-	;	_
		bedrock				_			
						_			

Table 16.--Engineering Index Properties--Continued

	1		Classification	ication	Fragn	Fragments	Рег	Percentage p	d t
and soil name	Depth	USDA CEXCUIE			>10	3-10	11	ileve III	
			Unified	AASHTO	inches	-н	4	10	
	H				Pct	Pct			
306C:									
dissected	0-2	Highly	ЪТ	A-8	0	0	100	100	'
		decomposed		. — .					
							_		
	2-11		SM	A-2-4	0 - 4	0-5	85-100	80-95	75
	11-15	Sand, loamy	SM, SP-SM	A-3, A-2-4	0-3	0-2	85-100	80-95	35
	15-24		SC-SM, SP-SM	A-2-4, A-3	0 - 3	0-5	85-100	80-95	35
		fine sand			_	_			
_	24-59	Sandy loam,	SM	A-4, A-2-4	0-3	0-5	85-100 80-95	80-95	45
_		loamy sand		_	_		_		
	59-80	Sandy loam	SC-SM	A-2-4, A-4	0-3	0-5	85-100   80-95	80-95	45
Jeske, dissected	0-3	Highly	PT	A-8	0	0	100	100	П
_		decomposed		_	_	_	_		
_		plant material			_		_		
_	3-21	Sand	SP, SP-SM	A-3	0	0	95-100	90-100	09
_	21-31	Weathered	:	:	0	0	-	}	_
_		bedrock		_	_		_		
_	31-80	Unweathered	:	:	-	-	-	}	_
		bedrock							
307B:									
Rubicon, very					_				
deep water									
table	0-2	Slightly	PT	A-8	0	0	100	100	1
		decomposed		_	_	_	_		
_		plant material		_	_		_		
_	2-2	Sand	SM, SP, SP-SM	SP-SM A-2-4, A-3	0	0	95-100	85-100	40
_	5-30	Sand	SM, SP, SP-SM	SP-SM A-2-4, A-3	0	0	95-100	95-100 85-100	40
	30-38	Sand	SM, SP, SP-SM	SP-SM A-1, A-2-4,	0	0	95-100	85-100	40
_		_		A-3	_	_	_		
_	38-80	Sand	SM, SP, SP-SM	SP-SM A-1, A-2-4,	0	0	95-100	95-100 85-100	40
_				A-3					

Table 16. -- Engineering Index Properties -- Continued

						ı				
Map symbol	Depth	USDA texture		Classification	cation	Fragments	ents	Per	Percentage pa sieve numbe	. Pa mbe
	ı					>10	3-10			
			Uni	Unified	AASHTO	inches	inches	41	10	4
	ä					Pct	Pct			
307D: Rubicon. verv										
deep water										
table	0-2	Slightly	PŢ		A-8	0	0	100	100	10
		decomposed								
	c	בשוור חוושרפודשו				•	c	1	- CO	,
	2 L	Sand	CM GD			o c	o c	001-00 01-00	85-100 40	0 4
_	30-38	Sand				o c	o c		85-100 40	40
						•	•		1	9
	38-80	Sand	SM, SP,	, SP-SM A-1,	A-1, A-2-4,	0	0	95-100	5-100 85-100 40	40-
					A-3					
308B:										
Rubicon	0-2	Slightly	PT		A-8	0	0	100	100	10
		decombosed						_		
		plant material								
	2-2	Sand				0	0		85-100	40-
_	5-30	Sand			SP-SM A-2-4, A-3	0	0	95-100	85-100 40	40-
_	30-38	Sand	SM, SP,		SP-SM A-1, A-2-4,	0	0	95-100	85-100 40	40-
_		_				_		_		
	38-80	Sand	SM, SP,	, SP-SM A-1,	A-1, A-2-4,	0	0	95-100 8	85-100	40-
					A-3					
Sultz	0-1	Slightly	PT		A-8	0	0	100	100	-
		decomposed		-					-	
		plant material						_		
	1-2	Fine sand, sand		SP-SM		0	0	100	100	89-
_	2-6	Fine sand, sand	SM,		A-2-4, A-3	0	0	100	100	89-
	6-18	sand			A-2-4	0	0	100	100	75-
	18-51	Fine sand, sand SM,		SP-SM	A-2-4, A-3	0	0-2	100	95-100   50	-09
	51-80	Silt loam,	ML, SM		A-4, A-2-4	0	0	100	95-100 40	40-
		rine sand,								
_		sand								
308D:										
Rubicon	0-2	Slightly	PT		A-8	0	0	100	100	10
		decomposed								
		plant material			-				-	
_	2-5	Sand	SM, SP,		SP-SM A-2-4, A-3	0	0		85-100   40	40-
_	5-30	Sand	SM, SP,		SP-SM A-2-4, A-3	0	0		85-100 40	40-
_	30-38	Sand	SM, SP,		SP-SM A-1, A-2-4,	0	0	95-100	85-100   40	40-
_		_		_	A-3	_		_	_	
	38-80	Sand	SM, SP,	, SP-SM A-1,	A-1, A-2-4,	0	0	95-100 8	85-100 40	40-
					A-3					
_		_		_		_		_	_	

Table 16. -- Engineering Index Properties -- Continued

				Classification	Cation	Fracments	ant a	D P	Dergentage	5
Map symbol	Depth	USDA texture							sieve numb	
and soil name		_	_			>10	3-10			
			Uni	Unified	AASHTO	inches	inches	4	10	
	H					Pct	Pct			
308D:	-		E		a F				0	
	H   	decomposed	4			 	>	2	9	
		plant material								
	1-2	Fine sand, sand	SM,	SP-SM		0	0	100	100	89
	2-6	Fine sand, sand	SM,	SP-SM	A-2-4, A-3	0	0	100	100	89
	6-18	Fine sand		SP-SM	A-2-4	0	0	100	100	75
_	18-51	Fine sand, sand  SM,		SP-SM	A-2-4, A-3	0	0-5	100	95-100 50	50
	51-80	Silt loam,	MI, SM		A-4, A-2-4	0	0	100	95-100 40	40
		loamy very								
		sand								
309B:										
Rubicon, deep										
water table	0-2	Slightly	PT		A-8	0	0	100	100	Т
		decomposed	_			_				
		plant material				_				
-	2-5	Sand				0	0	95-100		40
	5-30	Sand			SP-SM A-2-4, A-3	0	0	95-100		40
	30-38	Sand	SM, SP,		SP-SM A-1, A-2-4,	0	0	95-100	85-100 40	40
	;								,	
_	38-80	Sand	SM, SP,	, SP-SM A-1,	A-1, A-2-4, A-3	o 	0	95-100	95-100 85-100 40 	40
_					) 1					
water table	0-2	Slightly	E d		8-8	0	c	100	100	-
	1	decomposed	<u>.</u>		,	,	,			
		plant material				_				
	2-5	Sand				0	0	95-100	85-100	40
-	5-30	Sand			SP-SM A-2-4, A-3	0	0	95-100	85-100 40	40
	30-38	Sand	SM, SP,		SP-SM A-1, A-2-4,	0	0	95-100	95-100   85-100   40 	40
	38-80	Sand	SM, SP,	SP-SM A-1,	A-1, A-2-4,	0	0	95-100	85-100	40
3108.										
Kalkaska, burned	0-2	Sand	SM, SP	SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	2-6	Sand	SP-SM,	SM	A-2-4, A-3	0	0-3	95-100	85-100 40	40
	8-9	Sand	SM, SP-SM	-SM		0	0-3	95-100	85-100 40	40
	8-16	Sand	SP-SM,	SM		0	0-3	95-100	95-100 85-100 40	40
	16-26	Sand	SP-SM,			0	0-3	95-100	85-100 40	40
	26-80	Sand	SP-SM,	SM	A-2-4, A-3	0	0-3	95-100	85-100 40	40
_		. —	_			_		_		

Table 16. -- Engineering Index Properties -- Continued

			_	Classification		Fragments	nents	Pe	Percentage	Q <sub>1</sub>
Map symbol	Depth	USDA texture	ıre						sieve numb	dmr
and soil name						>10	3-10			
			Unified	d AASHTO	10	inches	inches	4	10	
	п					Pct	Pct			
310D:										
Kalkaska, burned	0-2	Sand	SM, SP-SM		A-3	0	0-3	95-100	85-100	40
_	2-6	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	95-100   85-100   40	40
_	8-9	Sand	SM, SP-SM	A-2-4,	A-3	0	0-3	95-100	95-100   85-100   40	40
	8-16	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	85-100 40	40
	16-26	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	85-100 40	40
	26-80	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	85-100	40
3101.										
Kalkaska, burned	0-2	Sand	SM. SP-SM	A-2-4.	A-3	0	0-3	95-100	85-100	40
	2-6	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100		40
-	8-9	Sand	SM, SP-SM		A-3	0	0-3	95-100	95-100 85-100 40	40
	8-16	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	95-100 85-100 40	40
	16-26	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	85-100 40	40
	26-80	Sand	SP-SM, SM	A-2-4,	A-3	o _	0-3	95-100	85-100	40
311B:										
Kalkaska, very				_		_				
deep water		_	_	_		_	_		_	
table, burned	0-2	Sand	SM, SP-SM		A-3	- 0	0-3	95-100	85-100	40
_	2-6	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	95-100   85-100   40	40
_	8-9	Sand	SM, SP-SM	A-2-4,	A-3	0	0-3	95-100	85-100 40	40
_	8-16	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	95-100  85-100  40	40
_	16-26	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	95-100   85-100   40	40
	26-80	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	85-100	40
311D:										
Kalkaska, very		- —		. —		_				
deep water		_	_	_		_			_	
table, burned	0-2	Sand	SM, SP-SM		A-3	0	0-3	95-100	85-100	40
_	2-6	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	95-100   85-100   40	40
_	8-9	Sand	SM, SP-SM	A-2-4,	A-3	0	0-3	95-100	95-100   85-100   40	40
	8-16	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	95-100   85-100   40	40
_	16-26	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	85-100 40	40
_	26-80	Sand	SP-SM, SM	A-2-4,	A-3	0	0-3	95-100	95-100  85-100  40	40
			_	_		_			_	

Table 16. -- Engineering Index Properties -- Continued

			Cla	Classification	Frace	Fragments	Per	Percentage	ρ
Map symbol	Depth	USDA texture			h !			sieve numb	ımb
and soil name			Thi fied	OH HOW	>10	>10   3-10	4	0	
	H			-	Pct	Pct			
312B:									
Islandlake, burned	0-1	Slightly	PT	A-8	0	0	100	100	
		decomposed							
	7 - 2	plant material	מט-מא	- K			06-100	001-08	4 5
	7 1				> 	>	00 T - 00 E	001	n #
	2-8	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	96-100   90-100	45
_		sand		_	_				
	6-8	Sand, loamy	SP-SM, SM	A-2-4	0	0	001-96	96-100   90-100	45
		sand							
	9-4-1	Sand	SP-SM, SM	A-2-4	0 0	0 0	00T-96	96-100 90-100	45
	4T-80	Fine sand,	SP-SM, SM		o 	o 	00T-96	00T-06	4 U
		sand, sand,							
31213.									
Islandlake,									
purned	0-1	Slightly	PT	A-8	0	0	100	100	
_		decomposed		_	_				
	,	₽							,
	T-Z	Sand, Loamy	SP-SM, SM	A-Z-4	o 	o 	00T-96	00T-06	45
	0 1	sand  Gand loamy	מם-מש מש	A-2-4		c	001-96	001-06 001-96	4 5
	4 0				> 	·	1	0	)  -  -
	6-8	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	90-100	45
_		sand		_	_		_		
	9-41	Sand		A-2-4	0	0 (	96-100	90-100	45
	41-80	Fine sand,	SP-SM, SM		0	0	00T-96	00T-06	45
313B:									
Kalkaska, deep water table.				. — —					
burned	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100		40
	2-6	Sand	SP-SM, SM	A-3, A-2-4	0	0-3	95-100	85-100	40
_	8-9	Sand	SM, SP-SM	_	0	0-3	95-100		40
	8-16	Sand		A-2-4,	0	0-3	95-100	85-100	40
	16-26	Sand		A-2-4,	0	0-3	95-100	85-100	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
_				_	_		_		_

Table 16. -- Engineering Index Properties -- Continued

					1	1	ı				
Map symbol	Depth	USDA	texture		Classification	ication	Fragments	nents	Per	Percentage p sieve numb	du s
				-	7	E E	>10 3-10	3-10	-	5	
	r L			7	200111111111111111111111111111111111111	OTHERN	DOL	Pot	r	2	
	i							)			
314B: Blue Lake wern											
table, burned	0 - 5	Loamy	sand	SM		A-2-4	0	8-0	90-100 85-100	85-100	40
	5-7	Sand,	loamy	SW,	SP-SM	A-1, A-3	o 	8-0	90-100	90-100   85-100   40 	40
	7-27	Loamy	sand,	SM.	SP-SM	A-1, A-3	0	8-0	90-100 85-100	85-100	40
		sand					·				
	27-80	Sand,	loamy	SM,	SP-SM	A-3, A-2-4	0	8-0	90-100 85-100	85-100	40
_		sand,	sandy				_	_	_	_	
_		loam,	loamy				_	_	_	_	
_		fine	sand,				_		_	_	
		fine	sandy				_	_		_	
		loam									
3.15B.											
-											
Blue Lake, deep											
	0-5	Toamv	Sand	M		A-2-4	c	8-0	90-100 85-100	85-100	40
	7 0	Sand	Joamy	. ¥	MS-GS	A-1 - A	o c	0 0	90-100	90-100 85-100 40	40
		sand	-	ì			· 	) )	1	9	9
	7-27	Loamy	sand,	SM,	SP-SM	A-1, A-3	0	8-0	90-100 85-100	85-100	40
		sand					_	_	_		
_	27-80	Sand,	loamy	SM,	SP-SM	A-3, A-2-4	0	8-0	90-100 85-100	85-100	40
_		sand,					_	_	_	_	
		loam,	loamy				_				
		fine	sand,							_	
		fine	sandy								
		loam									
316B:											
Blue Lake,		_									
purned	0-2	Loamy	sand	SM		4-	0	8-0	90-100	90-100 85-100	40
	5-7	Sand,	loamy	SM,	SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
	7-27	Loamy	sand,	SM.	SP-SM	A-1, A-3	0	8-0	90-100	90-100 85-100	40
		sand									
_	27-80	Sand,	loamy	SM,	SP-SM	A-3, A-2-4	0	8-0	90-100 85-100	85-100	40
_		sand,					_		_	_	
		loam,	loamy							_	
		fine									
		fine	sandy								
		loam									

Table 16.--Engineering Index Properties--Continued

	:		Classi	Classification	Fragi	Fragments	Pe	Percentage p	Ω,
Map symbol and soil name	Depth	USDA texture			>10	3-10		sieve numb	QW1
			Unified	AASHTO	inches	inches inches	4	10	
	H H				Pct	Pct			
316D:									
Blue Lake,	_		_	_	_			_	
burned	0-2	Loamy sand	SM	A-2-4	0	8-0	90-100	90-100   85-100   40	40
	2-7	Sand, loamy	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100   85-100   40	40
	_	sand	_	_	_				
	7-27	Loamy sand,	SM, SP-SM	A-1, A-3	0	8-0	90-100	90-100   85-100   40	40
	_	sand	_	_	_				
	27-80	Sand, loamy	SM, SP-SM	A-3, A-2-4	0	8-0	90-100	90-100   85-100   40	40
	_	sand, sandy	. —	_	_				
		loam, loamy	_	_	_				
		fine sand,	_	_	_				
		fine sandy							
	_	loam			_				
1									
31/B:	_	_	_	_	_				
Kalkaska, very		_	_	_	_			_	
deep water			_		_			_	
table	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100 40	40
317D:									
Kalkaska, very									
deep water									
table	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100 85-100	40
	2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	8-16	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	16-26	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	95-100   85-100   40	40
	_	_	_	_	_		_	_	_

Table 16. -- Engineering Index Properties -- Continued

Men grampo 1	Ten th	4 &CDII	Classi	Classification	Fragn	Fragments	Per	Percentage pa	. Da
and soil name	4				>10	3-10			
			Unified	AASHTO	inches	inches	4	10	4,
	п				Pct	Pct	_		
318B:									
Islandlake, very									
deep water		_		. —	_			_	
table	0-1	Slightly	PT	A-8	0	0	100	100	-
		decomposed plant material							
	1-2	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	96-100   90-100	45-
	2-8	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100 90-100		45-
		sand		. —	_			_	
_	8-9	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	96-100 90-100	45-
_		sand		_	_		_	_	
_	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	90-100 45-	45-
	41-80	Fine sand,	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-
		loamy fine		_	_		_	_	
					_				
		loamy sand							
318D:									
Islandlake, very					_		_	_	
deep water		_		_	_		_	_	
table	0-1	Slightly	PT	A-8	0	0	100	100	
		decombosed							
_									
	1-2	Sand, loamy	SP-SM, SM	A-2-4	 0 	0	96-100   90-100	90-100	45-
	2-8	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	96-100   90-100	45-
_		sand		_	_		_	_	
	8-9	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100	96-100   90-100	45-
_		sand		_	_		_	_	
	9-41	Sand	SP-SM, SM	A-2-4	0	0	96-100	96-100   90-100   45	45-
_	41-80	Fine sand,	SP-SM, SM	A-2-4	0	0	96-100	90-100	45-
		loamy fine			_		_		
		sand, sand,			_		_		
		loamy sand		_	_		_	_	
		_		_	_		_	_	

Table 16.--Engineering Index Properties--Continued

			CI	assifi	Classification	Fragments	nents	Pel	Percentage	Ω
Map symbol	Depth	USDA texture					3-10		sieve numb	dmr
			Unified	ed	AASHTO	inches inches	inches	4	10	
	п					Pct	Pct			
319B: Islandlake	0-1	Slightly	ЪТ		A-8	0	0	100	100	'
		decomposed								
	1-2	plant material	MS-GS	MS	A-2-4	c	c	96-100	001-06 001-96	4 5
	1			:	· ·	· - —	•	) 		1
_	2-8	Sand, loamy	SP-SM, S	SM	A-2-4	0	0	96-100 90	90-100	45
				_						
	8 - 8	Sand, loamy	SP-SM, S	SM	A-2-4	o 	0	96-100	96-100   90-100	45
_	0-41	Sand	GD-GM	M	A-2-4	c	c	96-100	001-06 001-96	4 5
_	41-80	Fine sand,			A-2-4	0	0	96-100	96-100 90-100	45
		loamy fine								
_										
		loamy sand								
319D:										
Islandlake	0-1	slightly	PT		A-8	0	0	100	100	_
		decomposed								
	1-2	gand loamy	QD-QM	M	A-2-4	_ c	c	96-100	001-06 001-96	4 5
	1					• •	•	) 	9	1
_	2-8	Sand, loamy	SP-SM, S	SM	A-2-4	0	0	96-100	90-100	45
						_				
	დ - დ	Sand, loamy	SP-SM, S	SM	A-2-4	0	0	96-100	96-100 90-100 	45
	9-41	Sand	SP-SM, S	SM	A-2-4	0	0	96-100	96-100 90-100	
	41-80	Fine sand,			A-2-4	0	0	96-100	96-100   90-100	45
		sand, sand,								
319E:			į		(		(			
Islandlake	T-0	decomposed	H.		A-8	> 	>	0 T	00 T	'
		plant material								
_	1-2	Sand, loamy	SP-SM, S	SM	A-2-4	0	0	96-100	96-100   90-100	45
				_						
	2-8	Sand, loamy	SP-SM, S	SM	A-2-4	0	0	96-100	96-100 90-100	45
	6-8	Sand, loamy	SP-SM, S	SM	A-2-4	0	0	96-100	96-100 90-100	45
_	9-41	Sand			A-2-4	0	0	96-100	96-100   90-100   45	45
	41-80	Fine sand,	SP-SM, S	SM	A-2-4	0	0	96-100	90-100	45
		loamy sand								
_										
		-				-		_	_	_

Table 16. -- Engineering Index Properties -- Continued

			ממנה היה ממנה	+ i	Transparent transparent	a tra	D 0	Dercontage	5
Map symbol	Depth	USDA texture			1			sieve numbe	ımbe
			Unified	AASHTO	>10  inches	3-10	4	10	4
-	ä				Pct	Pct			
319F:	,								
Islandlake	0-1	Slightly	PT	A-8	0	0	100	100	-
_		plant material			_		_		
	1-2	Sand, loamy	SP-SM, SM	A-2-4	 0 	0	96-100	96-100   90-100	45-
	2 - 8	Sand, loamy	SM, SP-SM	A-2-4	0	0	96-100	100 90-100	45-
		sand					_		
	6 - 8	Sand, loamy	SP-SM, SM	A-2-4	0	0	96-100   90-100	90-100	45-
		sand					,	7	L
	9-41 41-80	Sand Fine gand	SP-SM, SM	A-2-4 A-2-4	 	o c	96-100	96-100   90-100   45 96-100   90-100   45	45- 45-
	1	loamy fine			 	•		9	)
		loamy sand							
320B:									
Kalkaska, deep									
water table	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40-
	2-6	Sand	SP-SM, SM		0	0-3	95-100	85-100	40-
	8 - 9	Sand			0	0-3	95-100	85-100   40	40-
	8-16	Sand			0	0-3	95-100		40-
	16-26	Sand			0	0-3	95-100		40-
_	26-80	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100 40	40-
321B:									
Kalkaska	0-2	Sand	SM, SP-SM		0	0-3	95-100		40-
	2 - 6	Sand			0	0-3	95-100		40-
-	8-9	Sand			_ ·	0-3	95-100		40-
	8-16	Sand			0	0-3	95-100	85-100 40	40-
	16-26	Sand			0 0	0-3	95-100	85-100 40	40-
	26-80	Sand	SP-SM, SM	A-2-4, A-3	o 	0-3	95-100	85-100	40-
Deerton	0-1	Highly	PT	A-8	0	0	100	100	
		decomposed			_		_		
		plant material			_		_		
	1-9		SP-SM, SP		0	0-5	85-100	85-100   80-100   40	40-
	9-10		SP, SM, SP-SM A-2-4,	A-2-4, A-3	8-0	0-15	10-100	65-100	35-
		channery sand,							
	0		אט אט תט	- L	0	7	7	700	7
	0 FO	loamy sand,	, mc		0	n H		0	0
		sand			_		_		
	25-39	Weathered	:	:	:	-	:	-	-
		bedrock							
	39-80	Unweathered	:	:	:	-	:	!	1

Table 16. -- Engineering Index Properties -- Continued

Map symbol         Depth         USDA texture         Unified         AASHTO         inches inches inches         4         10           321D:         In         In         Unified         AASHTO         inches inches         4         10           321D:         In	_			Classif	Classification	Frag	Fragments	Peı	Percentage p	Q T
soil name         Inches         Port         3-10         3-10           aska	Map symbol	Depth	USDA texture					02	sieve nu	녭
aska	and soil name					>10	3-10			
aska				Unified	AASHTO	inches	inches	4	10	
aska		In				Pct	Pct			
aska         0-2         Sand         SM, SP-SM, SM         A-2-4, A-3         0         0-3         95-100         85-100           6-8         Sand         SP-SM, SM         A-2-4, A-3         0         0-3         95-100         85-100           6-8         Sand         SP-SM, SM         A-2-4, A-3         0         0-3         95-100         85-100           16-26         Sand         SP-SM, SM         A-2-4, A-3         0         0-3         95-100         85-100           ton	321D:									
2-6   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     6-8   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     8-16   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     16-26   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     1-6   Accomposed   PT   A-8   0   0-3   95-100   85-100     1-9   Sand   SP-SM, SP   A-3   0   0-5   85-100   85-100     1-0   Sand   SP-SM, SP   A-3   0-8   0-15   70-100   65-100     10-25   Channery sand,   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100     10-25   Channery sand,   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100     10-25   Weathered               139-80   Unweathered                 158   Bedrock                   159   Sand                     159   Bedrock	Kalkaska	0-2	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
6-8   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     8-16   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     16-26   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100		2-6	Sand	SP-SM, SM	A-2-4, A-3	0	0-3	95-100	85-100	40
8-16   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     16-26   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100		8-9	Sand	SM, SP-SM	A-2-4, A-3	0	0-3	95-100	85-100	40
16-26   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100     26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100		8-16	Sand		A-2-4, A-3	0	0-3	95-100	85-100	40
26-80   Sand   SP-SM, SM   A-2-4, A-3   0   0-3   95-100   85-100		16-26			A-2-4, A-3	0	0-3	95-100	85-100	40
		26-80	Sand		A-2-4, A-3	0	0-3	95-100	85-100	40
decomposed   1-9   Sand   SP-SM, SP   A-3   0   0-5   85-100   80-100     1-9   Sand   SP-SM, SP   A-2 + A-3   0-8   0-15   70-100   65-100     10-25   Channery sand,   SP-SM, SM, SP   A-3 + A-4   0-8   0-15   70-100   65-100     10-25   Channery sand,   SP-SM, SM, SP   A-3 + A-2 + A   0-8   0-15   70-100   65-100     10-25   Weathered             10-25   Weathered           10-26   SP-SM, SM, SP   A-3 + A-2 + A   0-8   0-15   70-100   65-100     10-27   Weathered             10-28   SP-SM, SM, SP   A-3 + A-2 + A   0-8   0-15   70-100   65-100     10-28   SP-SM, SM, SP   A-3 + A-2 + A   0-8   0-15   70-100   65-100     10-29   Weathered               10-20   SP-SM, SM, SP   A-3 + A-3   0-8   0-15   70-100   65-100     10-27   SP-SM, SM, SP   A-3 + A-3   0-8   0-15   70-100   65-100     10-28   SP-SM, SM, SP   A-3 + A-2 + A   0-8   0-15   70-100   65-100     10-29   SP-SM, SM, SP   A-3 + A-2 + A   0-8   0-15   70-100   65-100     10-29   SP-SM, SM, SP   A-3 + A-3   0-8   0-15   70-100   65-100     10-29   SP-SM, SM, SP   A-3 + A-2 + A   0-8   0-15   70-100   65-100     10-29   SP-SM, SM, SP   A-3 + A-2 + A   0-8   0-15   70-100   65-100     10-20   SP-SM, SM, SP   A-3 + A-3 + A-3   0-8   0-15   70-100   65-100     10-20   SP-SM, SM, SP   A-3 + A-3 + A-3   0-8   0-15   70-100   65-100     10-20   SP-SM, SM, SP   A-3 + A-3 + A-3   0-8   0-15   70-100   65-100     10-20   SP-SM, SM, SP   A-3 + A-3 + A-3   0-8   0-15   70-100   65-100     10-20   SP-SM, SM, SP   A-3 + A-3 + A-3   0-8   0-15   70-100   65-100     10-20   SP-SM, SM, SP   A-3 + A-3 + A-3   0-8   0-15   70-100     10-20   SP-SM, SM, SM, SP   A-3 + A-3 + A-3   0-8   0-15   70-100     10-20   SP-SM, SM, SM, SM, SM, SM, SM, SM, SM, SM,	\$ 00 C	-	# L45 : 12	E-	0			0	0	
Decomposed   SP-SM, SP   A-3   0   0-5   85-100   80-100     Sand   SP-SM, SP-SM   A-2-4, A-3   0-8   0-15   70-100   65-100     Channery sand,   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100     Loamy sand,   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100     Sand   Sand   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100     Weathered             Dedrock	Deet Collins	1	YTT STITZ	1 4	0 4	>	>	2	9	'
Plant material   SP-SM, SP   A-3   0   0-5   85-100   80-100     Loamy sand,   SP, SM, SP-SM   A-2-4, A-3   0-8   0-15   70-100   65-100     Channery sand,   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100     Loamy sand,   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100     Weathered             bedrock   Down sand,           bedrock             Dedrock             Sand             Dedrock               Dedrock             Dedrock             Dedrock             Dedrock               Dedrock               Dedrock               Dedrock                 Dedrock                 Dedrock                   Dedrock                       Dedrock			decombosed							
Sand   SP-SM, SP   A-3   0   0-5   85-100   80-100   10-20	_		plant material	_	_	_				
Loamy sand,   SP, SM, SP-SM   A-2-4, A-3   0-8   0-15   70-100   65-100   sand   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   10-3   sand   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   Sand   Sand   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   SP-SM, SM, SM, SM, SM, SM, SM, SM, SM, SM,		1-9	Sand	SP-SM, SP	A-3	0	0-5	85-100	80-100	40
Channery sand,		9-10	Loamy sand,	SP, SM, SP-SM	A-2-4, A-3	8-0	0-15	70-100	65-100	35
Sand   Channery sand,   SP-SM, SM, SP   A-3, A-2-4   0-8   0-15   70-100   65-100   10-my sand,   Sand   Weathered			channery sand,	_	_	_	_			
Channery sand,   SP-SM, SM, SP A-3, A-2-4   0-8   0-15   70-100   65-100     Loamy sand,   sand			sand	_		_				
Loamy sand,	_	10-25	Channery sand,		A-3, A-2-4	0-8	0-15	70-100	65-100	35
sand			loamy sand,	_	_	_	_			
Weathered			sand	_	_	_	_			
bedrock		25-39	Weathered	-	-	-	:	-	-	-
Unweathered			bedrock	_	_	_	_			
bedrock		39-80	Unweathered	:	:	-	:	-	-	'
	_		bedrock							

Table 17.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol	   Depth	   Clay	   Moist	Permea-	  Available	!	Erosi	on fac	Lors	erodi-	Wind  erodi-
and soil name			bulk	bility	water	extensi-	!			bility	
	<u> </u>	<u> </u>	density	(Ksat)	capacity	bility	K	Kf	T	group	index
	In	Pct	g/cc	In/hr	In/in	Pct					
10.		l I	 		l I	l I		 	 	1	l I
Beaches		 	 		! [	İ	1	 	 		l I
		İ	i		İ	i	i	i		İ	İ
11C:		į	j i		į	į	İ	į	į	į	j
Deer Park	0-2			6.00-20.00					5	1	220
	2-3	!	1.30-1.55				.15	.15			
	3-10			6.00-20.00			.15	.15			
	10-21		1.30-1.60   1.50-1.60				.15	.15			
	21-80	0-10	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	 	1	l I
11E:		 	 		I I				 	 	l I
Deer Park	0-2			6.00-20.00					5	1	220
	2-3	0-5	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	İ	İ	İ
	3-10	0-10	1.20-1.50	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	į	į	İ
	10-21	0-10	1.30-1.60	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15	ĺ	İ	ĺ
	21-80	0-10	1.50-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
						!	!	!		ļ	ļ
11F:											
Deer Park	0-2			6.00-20.00	1		1.5		5	1	220
	2-3   3-10	!	1.30-1.55	6.00-20.00 6.00-20.00			1.15	.15   .15	 	1	l I
	10-21			6.00-20.00			1.15	.15	l I	 	
	21-80		1.50-1.60				.15	.15			
12B:		 	 		 	 		 	 		
Rubicon	0-2	i	j j	6.00-20.00	i	i			5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38		1.50-1.60				.15	.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
12D:		 	 		l I	 			 	 	l I
Rubicon	0-2	 	 	6.00-20.00	 				   5	1	220
	2-5	0-5	1.30-1.55		1	0.0-2.9	.15	.15	-	-	
	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15	İ	į	İ
	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15	ĺ	İ	ĺ
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
						!	!	!		ļ	ļ
12E:											
Rubicon	0-2			6.00-20.00 6.00-20.00	1		1.5		5	1	220
	2-5   5-30		1.30-1.55   1.30-1.60		1	1	1.15	.15   .15	 	1	l I
	30-38	!		6.00-20.00			1.15	.15	l I	 	
	38-80	!		6.00-20.00	!			.15	 		
		ĺ			İ	i	i	i	İ	İ	İ
13B:			l i								
Kalkaska				6.00-20.00			.15	.15	5	1	220
	2-6			6.00-20.00				.15			
	6-8			6.00-20.00			1	.15			
	8-16	!		6.00-20.00	1	1	.15	.15			
	16-26			6.00-20.00			.15	.15			l I
	26-80	I 0-T0	1.33-1.65	6.00-20.00	10.05-0.07	0.0-∠.9	.15	.15	l	1	1

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	Clay	Moist	Permea-	  Available	Linear	LECS1	on fac	LOFS		Wind  erodi-
and soil name	_	į	bulk	bility	water	extensi-	i		Ī	bility	
į		į	density	(Ksat)	capacity	bility	K	Kf	т	group	index
	In	Pct	g/cc	In/hr	In/in	Pct	İ	İ			Ī
		!			!	!	ļ				!
L3D:	0.0		1 20 1 55	6 00 00 00		0.0-2.9	15	15	   5	   1	   220
Kalkaska	0-2 2-6		1.30-1.55	6.00-20.00	1		1.15	.15   .15	5	1	220
	6-8			6.00-20.00			1.15	1.15	l I	1	
	8-16			6.00-20.00			1.15	.15	 	İ	i
	16-26			6.00-20.00			.15	.15		i	i
İ	26-80			6.00-20.00	1		.15	.15		İ	i
						ļ	ļ				
L3E:   Kalkaska	0.0	0.10		6 00 00 00		0.0-2.9	15	15		   1	
Kaikaska	0-2 2-6			6.00-20.00	1		1.15	.15   .15	5	+	220
	6-8			6.00-20.00			1.15	.15	 	l I	
	8-16			6.00-20.00			1.15		 		i
	16-26			6.00-20.00			1.15	.15	 	İ	i
	26-80			6.00-20.00			.15	.15		İ	i
į		İ	į į		İ	Ì	İ	į	İ	İ	į
15A:		<u> </u>				ļ	ļ				
Croswell	0-2		0.10-0.20		1	1			5	1	220
	2-6			6.00-20.00			.15	.15			
	6-15 15-22			6.00-20.00			1.15	.15   .15			
	22-80		1.55-1.65		1		1.15	.15	 	1	 
		0 10		0.00 20.00			.13	.13	<u> </u>		
L6A:		į	j i		į	į	į	į	į	į	į
Paquin	0-2			6.00-20.00					2	1	220
	2-12	0-5	1.35-1.45	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	12-14			6.00-20.00			.15	.15			
	14-17		1.65-1.80				.15				!
	17-27			0.60-6.00			.15				!
	27-34			6.00-20.00			.15	.15			
	34-80	0-1	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15	 	l I	 
.7A:		 	 		 	l I	Ì	İ	 	i i	 
Au Gres	0-2	i		6.00-20.00	i				5	1	220
į	2-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	İ	İ	į
j	7-17	0-10	1.40-1.65	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	ĺ	İ	İ
	17-28	0-10	1.40-1.65	6.00-20.00	0.06-0.07	0.0-2.9	.15	.15			
	28-80	0-10	1.50-1.65	6.00-20.00	0.05-0.06	0.0-2.9	.15	.15			!
10.		 	 		 						
18:   Kinross	0-3	 	  0 10-0 35	6.00-20.00	  0 35_0 45	 			   3	2	134
KINIOBB	3-14			6.00-20.00			.15	.15	]	4	131
	14-22			6.00-20.00	1	1	1.15	.15	 	İ	i
	22-35			6.00-20.00			1		<u> </u>	İ	i
į	35-80	0-1	1.40-1.70	6.00-20.00	0.04-0.06	0.0-2.9		:	į	į	į
19:							ļ				
Deford	0-4			0.60-6.00					5	2	134
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
21A:		 	 		 			l I	l I	1	
Ingalls	0 - 4	 	 	6.00-20.00	0.35-0.45				   5	2	134
<b>3</b>	4-5	1		6.00-20.00			1	.15	i	i '	į
i	5-14			6.00-20.00			.15	:	i	İ	i
i	14-16			6.00-20.00	1	1	.15		İ	İ	į
i	16-35	0-10	1.35-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
İ	35-80	0-15	1.65-1.80	0.20-0.60	0.14-0.22	0.0-2.9	.43	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	   Clay	   Moist     bulk	Permea-	  Available	!	Erosi	on fac		erodi-	Wind  erodi-
and soll name		 	! !	bility	water	extensi-	17	   Kf		bility  aroup	
	In	Pct	density   g/cc	(Ksat) In/hr	capacity In/in	bility   Pct	K	KI	T 	group	Index
		İ	į į	·	į	į	İ	İ	İ	İ	İ
24B:	0.1	 	 	0 60 0 00	 				   4	   2	124
Munising	0-1 1-2	1	  1.35-1.60	0.60-2.00 0.60-2.00	0.08-0.18	0.0-2.9	.24	.24	<del>1</del> 	4 	134
	2-10		1.30-1.65		0.08-0.18	1	1.17	1.17	 	l I	l I
	10-14		1.35-1.70		0.11-0.17		.24	.24		İ	İ
	14-22	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.24	.24	į	į	į
	22-49	8-14	1.80-2.10	0.00-0.06	0.02-0.04	0.0-2.9	.24	.24			
	49-63		1.35-1.70		0.03-0.05	1	.24	.24			
	63-80	6-12	1.70-1.80	0.60-2.00	0.03-0.05	0.0-2.9	.20	.24	 	 	
25B:		 	 		 	 			 	 	 
Munising	0-1		i i	0.60-2.00					4	2	134
	1-2	0-10	1.35-1.60	0.60-2.00	0.08-0.18	0.0-2.9	.24	.24	İ	j	į
	2-10	0-10	1.30-1.65	0.60-2.00	0.08-0.18	0.0-2.9	.17	.17			
	10-14		1.35-1.70		0.11-0.17	1	.24	.24			
	14-22		1.35-1.70		0.11-0.17		.24	.24			
	22-49 49-63		1.80-2.10   1.35-1.70		0.02-0.04	1	.24	.24	 	 	 
	63-80		1.35-1.70   1.70-1.80		0.03-0.05	1	.20	.24	 	l I	l I
	03-00	0-12	1.70-1.00	0.00-2.00		0.0-2.5	.20	•24		! 	 
Yalmer	0-1	i	i i	6.00-20.00					4	2	134
	1-3	0-6	1.30-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.17	İ	j	į
	3 - 8		1.30-1.65				.15	.17			
	8-11		1.40-1.70			1	.15	.15			
	11-24		1.40-1.70			1	.15	.15			
	24-40 40-66		1.80-2.10   1.35-1.70			1	1.15	1.17	 	 	 
	66-80		1.60-1.80		0.03-0.05	1	.17	.24		! 	
		<u> </u>			ļ	[	1			!	ļ.
25D:	0.1	 		0 60 0 00		 			   4	   2	124
Munising	0-1 1-2	1	  1.35-1.60	0.60-2.00 0.60-2.00	  0 08-0 18	l.	.24	.24	<del>1</del> 	4 	134
	2-10		1.30-1.65			1	1 .17	1 .17	 	l I	 
	10-14		1.35-1.70		0.11-0.17	1	.24	.24	 	! 	
	14-22	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.24	.24	į	į	į
	22-49	8-14	1.80-2.10	0.00-0.06	0.02-0.04	0.0-2.9	.24	.24	ĺ	ĺ	ĺ
	49-63		1.35-1.70		0.03-0.05		.24	.24			
	63-80	6-12	1.70-1.80	0.60-2.00	0.03-0.05	0.0-2.9	.20	.24			
Yalmer	0-1	 	 	6.00-20.00		 			   4	   2	   134
raimer	1-3	1	1.30-1.65			1	.15	.17	<del>*</del> 	<del>*</del>	131
	3-8		1.30-1.65				.15	.17		İ	İ
	8-11			6.00-20.00			.15	.15			İ
	11-24			6.00-20.00				.15			
	24-40			0.00-0.06						ļ	ļ
	40-66			0.60-2.00				.24			
	66-80	8-14 	1.60-1.80  	0.60-2.00	0.03-0.05	0.0-2.9	.17	.24	 	 	l I
31D:		! 	i i			i	i			! 	
Trenary	0-2	1-10	1.30-1.60	0.60-2.00	0.11-0.24	0.0-2.9	.28	.28	5	5	56
	2-6	2-8	1.30-1.60	0.60-2.00	0.14-0.24	0.0-3.0	.20	.24	ĺ	ĺ	ĺ
	6-12			0.60-2.00		•	1	.24			
	12-17			0.60-2.00				.24			
	17-26			0.60-2.00				.24		[ [	
	26-37 37-80			0.60-2.00 0.60-2.00		1		.32	 	 	 
										<u> </u>	İ
33:		ļ	ļ İ		ļ	ļ	[			ļ	
Ensley	0-5			0.60-2.00					4	2	134
	5-7			0.60-2.00		•		.37		 	
	7-19 19-80			0.60-2.00 0.60-2.00				.28	l I	I I	I I
	T) - 00	1 2-13	/ 0 00	3.00-2.00	10.10-0.13	1 0.0-2.9	1 . 1 .	.20	1	I	1

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	   Clay	   Moist	Permea-	  Available	!		on fac	LOIS	erodi-	
and soil name			bulk	bility	water	extensi-				bility	
1	In	Pct	density g/cc	(Ksat)	capacity   In/in	bility   Pct	K	Kf	T 	group	Index
	-111		g/cc 	111/111	111/111				 		
35B:		İ	İ	İ	İ	İ	İ	İ	į	į	į
Munising	0-1			0.60-2.00					4	2	134
	1-3		1.30-1.60		0.14-0.18	1	.20	.24			
	3 - 6		1.35-1.60		0.14-0.18	1	.20	.24			
ļ	6-23		1.35-1.60		0.14-0.18	1	.20	.24			!
ļ	23-38		1.80-1.90		0.02-0.04	1	.15	.17			
ļ	38-50		1.80-1.90		0.02-0.04	1	.20	.24			
	50-63 63-80		1.60-1.80  1.60-1.85	'	0.11-0.14		1.15	.24	 		 
 	03-00	6-13	1.00-1.05	0.00-2.00	0.11-0.14	0.0-2.9	.13	.24	 		! !
Yalmer	0-1			6.00-20.00					4	2	134
į	1-2	0-8	1.35-1.65	6.00-20.00	0.08-0.12	0.0-2.9	.17	.17	İ	İ	i
į	2-5	0-8	1.35-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15	İ	İ	i
j	5-16	0-8	1.30-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.17	İ	İ	İ
	16-28	0-8	1.30-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.10	.17			
	28-36	2-10	1.80-1.90	0.00-0.06	0.02-0.04	0.0-2.9	.15	.17			
	36-62	5-12	1.80-1.90	0.00-0.06	0.02-0.04	0.0-2.9	.20	.24			
	62-80	8-15	1.60-1.85	0.60-2.00	0.11-0.14	0.0-2.9	.15	.24			
						[		[			
Frohling	0-2		0.20-0.30		0.35-0.45	1			5	3	86
ļ	2-5		1.30-1.65		0.09-0.18	1	.20	.24			ļ
ļ	5-24		1.35-1.70		0.14-0.17		.20	.24			
ļ	24-73 73-80		1.80-2.10  1.60-1.80		0.02-0.04	1	.20	.24	 		
	73-00	0-12	1.60-1.60	0.60-2.00	0.11-0.15	0.0-2.9	.15	•24	 	1	l I
7B:		 	 	 	 	I I	1	i	 	 	i
Grand Sable	0-1			2.00-6.00		i			4	4	134
į	1-4	0-5	1.35-1.60	2.00-6.00	0.11-0.21	0.0-2.9	.17	.17	İ	İ	i
į	4-30	0-3	1.55-1.75	2.00-6.00	0.09-0.11	0.0-2.9	.17	.17	İ	İ	i
į	30-32	0-2	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15	İ	İ	İ
ĺ	32-43	0-2	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.10	.15	ĺ	İ	ĺ
	43-55	0-2	1.55-1.65	6.00-20.00	0.03-0.07	0.0-2.9	.15	.15			
	55-80	0-2	1.55-1.65	6.00-20.00	0.03-0.07	0.0-2.9	.15	.15			
											ļ
7E:	0 1	 	 							4	124
Grand Sable	0-1 1-4		  1.35-1.60	2.00-6.00		0.0-2.9			4	4	134
I	4-30		1.55-1.75		0.11-0.21		1 .17	.17   .17	 	1	 
 	30-32		1.30-1.55			1	1.15	1.15	 		i i
i i	32-43		1.40-1.65				1.10	.15	 	İ	i
i	43-55		1.55-1.65				.15	.15			İ
İ	55-80		1.55-1.65		0.03-0.07	1	.15	.15	İ	İ	i
į		İ	İ	İ	İ	ĺ	į	İ	İ	į	į
8B:						[					
Rhody	0-19			0.60-2.00			.28	.28	4	5	56
	19-36			6.00-20.00			.28	.28			
ļ	36-41			0.20-0.60							!
ļ	41-80			0.00-0.20							
   Towes	0-19	   0-6	  1 25_1 50	   0.60-2.00	   0 22_0 24	0.0-2.9	.28	.28	   4	   5	   56
lowes	19-22			6.00-20.00			1 .15	1.15	** 	5	56
l I	22-26		1.50-1.65					.15	 	 	i
i	26-37			0.20-0.60							İ
Ï	37-80			0.00-0.20					İ	İ	<u> </u>
į		İ		İ		į	İ	į	İ	į	į
0B:								1			
Waiska	0-1			20.00-60.00					5	3	86
	1-4			20.00-60.00			.15	.15			
	4-8			20.00-60.00			.05				
	8-18			20.00-60.00				.10			
	18-80	0-5	1.50-1.60	20.00-60.00	0.01-0.03	0.0-2.9	.02	.10		1	1

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist   bulk	Permea-	Available water	Linear extensi-	İ			Wind  erodi-  bility	Wind  erodi-  bility
and soll name	 	l I	density	-	capacity	1	K	Kf		group	
	In	Pct	g/cc	In/hr	In/in	Pct	<del>i</del>	i			İ
		ļ		<u> </u>			ļ	ļ			ļ
42: Davies	   0-4	 	 	   2.00-6.00		 			   5	   4	   86
Davies	0-4   4-11	1	1	2.00-6.00	1	1	1	1	<b>ɔ</b>	4	86
	11-80		1	20.00-60.00	t .		1	.02			
46:	 		 	 	 	 			 		 
Jacobsville	0-5		0.20-0.30	0.20-6.00	0.35-0.45				4	3	86
	5-9	5-12	1.10-1.35	0.60-2.00	0.08-0.18	0.0-2.9	.20	.24	İ	İ	
	9-23			0.60-2.00			.20	.24			
	23-36			0.60-2.00			1	.24			
	36-80	 	 	0.00-0.20	 	 			 		
47C:		ĺ	į			į	į				
Deerton	!		1	6.00-20.00	1	1			4	2	134
	1-9		1	6.00-20.00	1	1	1				
	9-10 10-25		1	6.00-20.00	t .				 		
	25-39	0-10		0.20-0.60		0.0-2.9			 	 	l I
	39-80		!	0.00-0.20	1	l			 	l I	l I
	33 00	İ					i	i			
Au Train	0-2			6.00-20.00					2	1	180
	2-9			6.00-20.00			.15	.15			
	9-14	0-4	1	2.00-6.00	1	1		1			
	14-32			0.20-0.60							
	32-80		 	0.00-0.20		 			 		
47E:	 	l I	 	 	! 	 	1	İ			l
Deerton	0-1	j		6.00-20.00	0.35-0.45	i	j	j	4	2	134
	1-9	0-5	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	9-10		1	6.00-20.00	1	1	1	1			
	10-25		1	6.00-20.00	1	1	1				
	25-39		1	0.20-0.60	1						
	39-80	 	 	0.00-0.20	 	 			 	 	
Au Train	0-2	i		6.00-20.00		i	i	i	2	1	180
	2-9	0-4	0.90-1.50	6.00-20.00	0.07-0.09	0.0-3.0	.15	.15			
	9-14		1	2.00-6.00	1	1	.15				
	14-32			0.20-0.60							
	32-80	 	 	0.00-0.20	 	 			 		
48:	İ	İ	İ	İ	İ	İ	į	į	į	į	į
Burt	0-1			6.00-20.00	1				2	8	0
	1-5		!	6.00-20.00	!	!		1		!	
	5-19   19-80	0-10	1.50-1.70 	6.00-20.00   0.00-0.20	0.04-0.10	0.0-3.0	.15	.15	 		
	19-60	 	 	0.00-0.20					 	 	l I
49B:	İ	İ	İ	İ	İ	İ	İ	į	į	İ	į
Cookson	0-3			6.00-20.00					4	5	56
	3-7			0.60-6.00				.24			
	7-11			0.60-6.00				.28			
	11-16			0.60-6.00				.43	 		l I
	16-21   21-31			0.60-6.00				.32	 	1	I I
	31-36			0.60-2.00			.24	.24			
	36-80			0.00-0.60					i		
	i	i	i	İ	i	i	i	i	i	i	i

Table 17.--Physical Properties of the Soils--Continued

Map symbol   and soil name	Depth	   Clay	   Moist   bulk	Permea- bility	  Available   water	   Linear  extensi-		on fac		erodi-	Wind  erodi-
and soil name		 	bulk   density	(Ksat)	water  capacity	extensi-   bility	   K	   Kf		bility  group	-
	In	Pct	g/cc	In/hr	In/in	Pct	1	KI	<u>+</u>	group 	Index
				,	,		İ	İ		İ	İ
51:											
Nahma	0-11			0.60-2.00	1	1	!		4	2	134
	11-14			0.60-2.00	1	1	.43			ļ	
	14-17			0.60-2.00	1	1		1			
	17-19 19-24			0.60-2.00 0.60-2.00	1	1	.43	.43	 	 	
	24-80	5-20		0.60-2.00		0.0-2.9	.24	.28	 	l I	
	24-00	 	 	0.00-0.00	 	 			 	l I	
Ruse	0 - 7	0-20	1.10-1.60	0.60-6.00	0.14-0.24	0.0-2.9	.28	.28	2	5	56
į	7-11	0-20	1.50-1.80	0.60-6.00	0.11-0.15	0.0-2.9	.24	.24	İ	j	İ
	11-15	0-20	1.50-1.80	0.60-6.00	0.10-0.14	0.0-2.9	.24	.24			
	15-80			0.00-0.60							
					!	!					
52B:											
Summerville				0.60-2.00	1	1	.32		4	3	86
	3-13 13-80	2-10	1.35-1.70  	0.60-2.00 0.00-0.60	0.10-0.19	0.0-2.9	.43	.43	 	 	
	13-00	 		0.00-0.60	 				 	l I	
57 <b>:</b>		! 			İ	İ	i	İ		! 	i
Carbondale	0-38	i	0.20-0.30	0.20-6.00	0.35-0.45	i			5	8	0
į	38-80	j	0.10-0.20	0.60-6.00	0.45-0.55	j	j	i	į	į	į
					[	[					
Lupton	0 - 4			6.00-20.00	1	1			5	8	0
	4-80		0.20-0.30	0.20-6.00	0.35-0.45						!
<b></b>	0.06			0 00 6 00							
Tawas	0-26 26-80			0.20-6.00 6.00-20.00	1	1	1.15		4	8	0
	20-00	0-3	1.20-1.57	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	 	l I	1
58:		! 			İ	İ	i	İ		! 	i
Dawson	0-10		0.05-0.15	6.00-20.00	0.55-0.65		i		4	8	0
i	10-38			0.20-6.00			i		İ	İ	i
j	38-80	0-10	1.50-1.70	6.00-20.00	0.03-0.10	0.0-2.9	.15	.15	ĺ	ĺ	İ
Greenwood				0.60-6.00	1	1			5	8	0
	65-80		0.13-0.23	0.60-6.00	0.35-0.45					ļ	
T 7	0 0						1			   8	   0
Loxley	0-8 8-80			6.00-20.00 0.20-6.00	1	1			5	8 	0
	0-00	 	0.13-0.23	0.20-0.00		 			 	l I	 
59 <b>:</b>		! 			i	i	i	i	 	! 	i
Chippeny	0-20	i	0.20-0.45	0.20-6.00	0.35-0.45	i	i		4	2	134
i	20-28	5-40	1.50-1.80	0.20-2.00	0.07-0.22	0.0-6.0	.43	.43	İ	j	į
	28-80			0.00-0.60							
Nahma				0.60-2.00				1	4	2	134
	11-14			0.60-2.00	1			1			
	14-17			0.60-2.00				1			
	17-19 19-24			0.60-2.00 0.60-2.00				1	 	 	
	24-80			0.00-2.00		0.0-2.9		.20	 	l I	
	24-00	 	 		 	 	 		 	l I	i
60:		! 			i	i	i	i	 	! 	i
Histosols	0-91	i		0.20-6.00	i	i	i		5	8	0
j		ĺ	İ		ĺ	ĺ	İ	İ	ĺ	ĺ	İ
Aquents	0-80			0.20-2.00					3		
		<u> </u>					ļ			ļ	
61:											
Pits									5		
62F:		 	 		I I	I I	I I	I	l I	I I	I I
b2r:   Udipsamments	0-80	   0-10	  1 35 <sub>-</sub> 1 65	6.00-20.00	  0 05-0 00	   0 0-2 0	1.15	1 .15	   5	   1	250
-arpsamments	3-30	0,10		0.00-20.00		0.0-2.9	•=5		, ,	. <del>-</del>	230
Udorthents	0-80	 		0.20-6.00					   5	 	
		į į		, <del>.</del>	į	İ	į	i	i	İ	i

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	   Clay 	   Moist   bulk	   Permea-   bility	  Available   water	   Linear  extensi-	Erosi	on fac		Wind  erodi-  bility	
and soll name		 	density	(Ksat)	capacity	bility	K	Kf		group	
	In	Pct	g/cc	In/hr	In/in	Pct			-		
64B:		 	 	 	  -	 		[ [		 	
Kiva	0-3	2-6	1.30-1.60	0.60-2.00	0.09-0.18	0.0-2.9	.24	.24	3	3	86
	3-6			2.00-6.00				.17	İ	İ	i
	6-15	2-7	1.35-1.70	0.60-2.00	0.09-0.17	0.0-2.9	.24	.24	į	ĺ	ĺ
	15-23		1	6.00-20.00				.17		!	!
	23-80	0-2	1.55-1.65 	20.00-60.00	0.01-0.03	0.0-2.9	.05	.10	 	 	 
64D:		İ	İ				į	İ		İ	
Kiva	0-3			0.60-2.00			.24	.24	3	3	86
	3-6			2.00-6.00				.17			
	6-15			0.60-2.00							
	15-23 23-80			6.00-20.00 20.00-60.00			.10	.17   .10	 	l I	
	23-80	0-2		20.00-00.00		0.0-2.9	.03	.10			
65D:											
Jeske	0-3		0.30-0.40  1.50-1.65	6.00-20.00			1.5		2	1	220
	3-21 21-31	0-5	1.50-1.65	6.00-20.00 0.20-0.60		0.0-2.9	.15	.15	 		
	31-80	 	 	0.20-0.80		 			 	 	
		İ	İ	İ		İ	į	İ	İ	İ	
Gongeau		1		6.00-20.00					2	2	134
	5-7		1.35-1.50				.17	.17		!	!
	7-18			6.00-20.00			.15	.15			
	18-29 29-80	 	 	0.20-0.60	0.01-0.02	 			 	 	 
		İ								ĺ	
Deerton				6.00-20.00					4	2	134
	1-9		1.30-1.55	1			.15	.15		!	!
	9-10		1.40-1.65	1			1.15	.15			
	10-25 25-39	0-10	1.40-1.65	6.00-20.00 0.20-0.60		0.0-2.9	.15	.15	 	l I	
	39-80			0.00-0.20							
										ļ	
65F: Jeske	0-3	l I	  0.30-0.40	   6.00-20.00	  0.35-0.45	 		 	   2	   1	   220
CCDIC	3-21		1.50-1.65	1			.15	.15	<del>-</del>	, <del>-</del>	220
	21-31			0.20-0.60					i	İ	i
	31-80			0.00-0.20					į	į	į
Gongeau	0-5	 	  0.30-0.40	   6.00-20.00	  0 35-0 45	 		 	   2	   2	   134
Gongeau	5-7		1.35-1.50	1			.17	.17	4	4	131
	7-18			6.00-20.00			.15	.15	İ	i	i
	18-29	i	i	0.20-0.60			j	i	İ	İ	i
	29-80			0.00-0.20						ĺ	
Deerton	0-1	 	 	   6.00-20.00	  0.35-0.45	 		 	   5	   1	   220
	1-9	1	1	6.00-20.00			1	!	-	i -	
	9-10			6.00-20.00				.15	İ	İ	i
	10-25	0-10	1.40-1.65	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15	į	ĺ	ĺ
	25-39			0.20-0.60							
	39-80		 	0.00-0.20							
66D:					 	 	ĺ	İ			
Ruse	0-10	2-8	1.10-1.60	0.60-2.00	0.21-0.24	0.0-1.0	.28	.28	2	5	56
	10-13		1.10-1.60	1			.43	.43		ļ	
	13-19			0.20-0.60							
	19-80	 	 	0.00-0.20	 	 				[ [	 
Ensign	0-10	4-10	1.20-1.50	0.60-2.00	0.15-0.22	0.0-2.9	.37	.37	2	3	86
	10-14	4-10	1.35-1.60	0.60-2.00	0.15-0.19	0.0-2.9	.37	.37			
	14-18			0.20-0.60							
	18-80		i	0.00-0.20	i	i		i	1		

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	   Clay 	   Moist     bulk	Permea- bility	  Available   water	   Linear  extensi-		on fac	   	wind  erodi-  bility	
una 2011 mano		l I	density	(Ksat)	capacity	bility	K	Kf	· -	group	
	In	Pct	g/cc	In/hr	In/in	Pct	<del> </del>		-		
445										[	
66D:   Nykanen	0 - 4	   4-8	  1.35-1.60	0.60-2.00	0.14-0.22	0.0-2.9	.37	   .37	   2	   3	   86
in y harron	4-14		1.35-1.70		0.14-0.19	0.0-2.9	.28	37	i -	]	
	14-25			0.20-0.60					i	İ	İ
į	25-80	i	i i	0.00-0.20			j	ļ	į	į	į
66 <b>F:</b>		 	 			 		 		 	 
Ruse	0-10	2-8	1.10-1.60	0.60-2.00	0.21-0.24	0.0-1.0	.28	.28	2	5	56
İ	10-13	2-8	1.10-1.60	0.60-2.00	0.21-0.24	0.0-1.0	.43	.43	İ	ĺ	ĺ
	13-19			0.20-0.60							
	19-80			0.00-0.20							
Ensign	0-10	4-10	  1.20-1.50	0.60-2.00	0.15-0.22	0.0-2.9	.37	.37	2	   3	   86
	10-14	4-10	1.35-1.60	0.60-2.00	0.15-0.19	0.0-2.9	.37	.37	İ	İ	İ
İ	14-18		i i	0.20-0.60					İ	ĺ	ĺ
ļ	18-80			0.00-0.20						[	
Nykanen	0 - 4	   4-8	  1.35-1.60	0.60-2.00	0.14-0.22	0.0-2.9	.37	   .37	   2	   3	   86
1	4-14		1.35-1.70		0.14-0.19	0.0-2.9	.28	.37	İ	ĺ	ĺ
į	14-25	i	j j	0.20-0.60	j	i	j	j	į	į	į
	25-80			0.00-0.20						[	
58 <b>:</b>		 	 			 	 	 	 	 	 
Pits, quarry	0-80		i i	0.01-20.00			i	i	-		
i i		j	j i		İ	j	İ	İ	į	İ	į
59B:									_		
Escanaba	0-1				0.45-0.55				5	2	134
	1-3 3-6		1.30-1.70   1.30-1.65		0.06-0.12	1	1.15	.17   .17	 	l I	l I
	6-26		1.30-1.65		0.05-0.12	1	1.15	1 .17	 	l I	 
	26-35		1.30-1.70		0.08-0.17	1	.24	.28	i	i	İ
į	35-42	10-18	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.24	.28	į	į	į
	42-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
/1A:		 	 			 		 	 	 	 
Evart	0-10	2-12	1.35-1.55	6.00-20.00	0.20-0.24	0.0-2.9	.32	.32	3	5	56
į	10-18	0-5	1.30-1.65	6.00-20.00	0.08-0.11	0.0-2.9	.17	.17	į	İ	İ
	18-80	0-2	1.50-1.65	6.00-20.00	0.02-0.10	0.0-2.9	.15	.15			
Sturgeon	0-6	   4-10	  1.20-1.50	0.60-2.00	0.17-0.22	0.0-2.9	.32	.32	   3	   5	   56
	6-16		1.35-1.70		0.17-0.22	0.0-2.9	.28	.28	-	i	
	16-80	0-4	1.50-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15	į	į	į
72E:		 	 			 		 		 	 
Deerton	0-1	 	i i	6.00-20.00	0.35-0.45				5	1	220
į	1-9	0-5	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	į	į	į
	9-10	0-10	1.40-1.65	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	10-25		1.40-1.65		1	1	1				
	25-39 39-80	 	 	0.20-0.60		 					
	39-80	 	 	0.00-0.20				 	 	l İ	 
Tokiahok	0-2	j		6.00-20.00		i	j	i	4	2	134
	2-11			6.00-20.00			.15	.17		[	
	11-15			6.00-20.00			.15				
	15-24 24-59		1.30-1.70   1.80-2.10	6.00-20.00 0.00-0.06			.15	1.17	 	I I	I I
	59-80		1.80-2.10   1.60-1.80		1	1	.20	.24		i İ	
į		İ	j j		İ	į	İ	İ	į	į	İ
Trout Bay	0-19	:		0.20-6.00					4	8	0
	19-34	 	 	0.20-0.60 0.00-0.20		 			 	1	I I
l l	34-80										

Table 17.--Physical Properties of the Soils--Continued

Map symbol   and soil name	Depth	   Clay	   Moist     bulk	Permea- bility	  Available   water	   Linear  extensi-	LECS1	on fac		wind  erodi-  bility	
and soil name		l I	density	(Ksat)	capacity	bility	K	   Kf		group	
	In	   Pct	g/cc	In/hr	In/in	Pct			-	group 	Index
į		į	į į		į	į	į	į	į	į	į
72F:     Deerton	0-1	 	 	6.00-20.00	  0 35-0 45	 			   5	   1	   220
Jeer con	1-9	1	  1.30-1.55		1	1	.15	.15		i -	220
	9-10		1.40-1.65		1	1	1.15	1.15		 	i
	10-25		1.40-1.65		1	1	1.15	.15	İ	<u> </u>	i
	25-39			0.20-0.60					i	i	i
	39-80		i i	0.00-0.20					į	ļ	
Tokiahok	0-2	 	 	6.00-20.00	 	 		 	   4	   2	   134
j	2-11	0-10	1.35-1.65	6.00-20.00	0.10-0.12	0.0-2.9	.15	.17	İ	İ	İ
j	11-15	0-10	1.30-1.70	6.00-20.00	0.07-0.12	0.0-2.9	.15	.17	ĺ	ĺ	ĺ
	15-24	0-10	1.30-1.70	6.00-20.00	0.07-0.12	0.0-2.9	.15	.17			
	24-59	2-15	1.80-2.10	0.00-0.06	0.02-0.04	0.0-2.9	.20	.24			
	59-80	8-15	1.60-1.80	0.60-2.00	0.09-0.13	0.0-2.9	.20	.24			
Trout Bay	0-19	 	  0.20-0.45	0.20-6.00	0.35-0.45	 			4	8	0
	19-34			0.20-0.60							
	34-80			0.00-0.20							
76C:		! 	 		 	! 				İ	
Garlic	0-2		i i	6.00-20.00					5	1	220
	2-9	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-3.0	.15	.15			
	9-11	0-10	1.30-1.60	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15			
	11-20	0-10	1.30-1.60	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15			
	20-29	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15			
	29-80	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15		[	
Blue Lake	0-2	 	 	2.00-6.00					5	2	134
	2-7	0-8	1.35-1.65	2.00-6.00	0.09-0.12	0.0-3.0	.15	.17			
	7 - 9	0-8	1.30-1.70	2.00-6.00	0.06-0.11	0.0-3.0	.15	.17			
	9-27		1.30-1.70		0.06-0.11		1.15	.17			
	27-80	0-10	1.35-1.65	2.00-6.00	0.07-0.10	0.0-3.0	.15	.17	 	 	 
Voelker	0-1		 	6.00-20.00					5	1	250
	1-5	0-6	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	5-11	0-6	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	11-15		1.40-1.65				.15	.15			
	15-31		1.40-1.65					.15			
	31-39		1.35-1.70		1	1		.24	ļ	!	!
	39-80	0-15	1.55-1.75  	0.20-0.60	0.08-0.20	0.0-2.9	.24	.24	 	 	 
76E:			į į		į	į	į			İ	
Garlic	0-2			6.00-20.00	1				5	1	220
	2-9			6.00-20.00			.15	.15	ļ		
	9-11			6.00-20.00			1.15	.15			
	11-20			6.00-20.00			.15	.15			
	20-29 29-80			6.00-20.00 6.00-20.00			1.15	.15	 	 	 
[			į į				į	İ			į
Blue Lake	0-2			2.00-6.00					5	2	134
	2-7			2.00-6.00			.15	.17			
	7-9   0-8  1.30-1.70    9-27   0-8  1.30-1.70					1.17					
	9-27 27-80			2.00-6.00	1	1	1.15	.17   .17		 	
Washing.	0.1		ļ	6 00 00 00							
Voelker	0-1			6.00-20.00	1				5	1	250
	1-5			6.00-20.00	1	1	.15	.15		1	1
	5-11			6.00-20.00				1.15	 	[ [	
	11-15			6.00-20.00				1.15	 	I I	1
	15-31 31-39			0.60-6.00 0.20-0.60			1.15	1.15	l I	I I	1
	39-80			0.20-0.60			.24	.24	l I	I I	
	33-00	1 0-12	1	0.20-0.00	0.00-0.20	0.0-2.9	.24	.24	I	I	I

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	   Clay	   Moist	Permea-	  Available	1	Erosi	on fac	cors	erodi-	Wind  erodi-
and soil name			bulk	bility	water	extensi-	_		! _	bility	-
	T	   D=t	density	(Ksat)	capacity	bility	K	Kf	T	group	index
	In	Pct	g/cc	In/hr	In/in	Pct		l I	l I	1	 
76F:		! 					i	İ			İ
Garlic	0-2	j	j i	6.00-20.00	j	j	j	i	5	1	220
j	2-9	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-3.0	.15	.15	ĺ	İ	ĺ
	9-11	0-10	1.30-1.60	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15			
	11-20			6.00-20.00			.15				
	20-29			6.00-20.00			.15	.15			
	29-80	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15			
Blue Lake	0-2	 	 	2.00-6.00	 				   5	2	134
Dide Lane	2-7	1	  1.35-1.65		1	1	.15	.17	]	-	131
	7-9				0.06-0.11		.15	.17	İ	İ	İ
	9-27	0-8	1.30-1.70	2.00-6.00	0.06-0.11	0.0-3.0	.15	.17	İ	İ	į
j	27-80	0-10	1.35-1.65	2.00-6.00	0.07-0.10	0.0-3.0	.15	.17	ĺ		ĺ
						1					
Voelker	0-1		1	6.00-20.00					5	1	250
	1-5			6.00-20.00			.15	.15			
	5-11			6.00-20.00			.15				
	11-15 15-31			6.00-20.00 0.60-6.00		1	1.15		 		 
	31-39			0.20-0.60			.24	.24	 	1	 
	39-80			0.20-0.60		1	.24	.24	 	 	 
		0 20							<u> </u>		
77B:		İ	İ		İ	į	i	İ	İ	i	İ
Garlic	0-2		i i	6.00-20.00					5	1	220
	2-9	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-3.0	.15	.15			
	9-11			6.00-20.00			.15				
	11-20			6.00-20.00			.15	.15			
	20-29			6.00-20.00			.15	.15			
	29-80	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15	 		 
Blue Lake	0-2	 	 	2.00-6.00	 				   5	2	134
2140 24.10	2-7	1		2.00-6.00	1	1	.15	.17		-	202
	7-9			2.00-6.00			.15	.17	<u> </u>	İ	İ
	9-27	0-8	1.30-1.70	2.00-6.00	0.06-0.11	0.0-3.0	.15	.17	İ	İ	į
	27-80	0-10	1.35-1.65	2.00-6.00	0.07-0.10	0.0-3.0	.15	.17			
						1					
Voelker	0-1			6.00-20.00	1				5	1	250
	1-5			6.00-20.00		1	.15	.15			
	5-11 11-15			6.00-20.00			1.15				
	15-31			6.00-20.00 0.60-6.00			.15		 	l I	l I
	31-39			0.20-0.60			.24	.24	 	 	 
	39-80			0.20-0.60		1	.24		<u> </u>		
		İ	İ		İ	į	i	İ	İ	i	İ
77D:		ĺ	į į		ĺ	ĺ		İ	ĺ	İ	ĺ
Garlic	0-2			6.00-20.00					5	1	220
	2-9			6.00-20.00		1	.15	.15			
	9-11			6.00-20.00			.15	.15			
	11-20			6.00-20.00			.15	.15			
	20-29			6.00-20.00			.15	.15	 		 
	29-80	   0-T0	±.55-1./5	6.00-20.00	0.06-0.09 	0.0-3.0	.15	.15	 	1	I I
Blue Lake	0-2	 	 	2.00-6.00	 				   5	2	   134
	2-7	1	1.35-1.65		0.09-0.12	1	.15	.17	i		-7-
	7 - 9			2.00-6.00	0.06-0.11		.15	.17	i	i	į
j	9-27	0-8	1.30-1.70	2.00-6.00	0.06-0.11		.15	.17	İ	İ	İ
İ	27-80	0-10	1.35-1.65	2.00-6.00	0.07-0.10	0.0-3.0	.15	.17			
			į į								

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	Clay	   Moist	Permea-	  Available		Erosi	on fac	uors	erodi-	
and soil name			bulk	bility	water	extensi-				bility	
			density		capacity	bility	K	Kf	Т	group	index
	In	Pct	g/cc	In/hr	In/in	Pct	ļ				
77D:		 			l I		1				
Voelker	0-1	 	 	6.00-20.00	 	 			   5	1	250
voerker	1-5			6.00-20.00		1		1	]	, <del>-</del>	230
	5-11			6.00-20.00				1	 	l I	l I
	11-15			6.00-20.00				:	İ	<u> </u>	
	15-31			0.60-6.00					İ	i	İ
i	31-39			0.20-0.60					İ	İ	İ
į	39-80	0-15	1.55-1.75	0.20-0.60	0.08-0.20	0.0-2.9	.24	.24	į	į	İ
77E:											
Garlic	0-2			6.00-20.00					5	1	220
	2-9			6.00-20.00				.15			
	9-11			6.00-20.00				1		!	
	11-20			6.00-20.00				:			ļ
	20-29			6.00-20.00				.15			
	29-80	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15			
Blue Lake	0-2	 	 	2.00-6.00	 	 			   5	   2	134
Biue Lake	2-7	1	' '	2.00-6.00	1	1	1.15		<b>ɔ</b>	4	134
	7-9			2.00-6.00				1 .17	 	l I	
	9-27			2.00-6.00				1 .17	l I	 	1
	27-80			2.00-6.00			.15	1.17	 	l I	l I
	_,	0 =0					125		i		i
Voelker	0-1			6.00-20.00			i		5	1	250
i	1-5	0-6	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	İ	İ	i
į	5-11	0-6	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	İ	į	İ
į	11-15	0-6	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15	į	İ	İ
	15-31	0-6	1.40-1.65	0.60-6.00	0.06-0.08	0.0-2.9	.15	.15			
	31-39	0-15	1.35-1.70	0.20-0.60	0.12-0.19	0.0-2.9	.24	.24			
	39-80	0-15	1.55-1.75	0.20-0.60	0.08-0.20	0.0-2.9	.24	.24			
										!	
88:							ļ				
Cathro	0-34			0.20-6.00					5	2	134
	34-80	5-20	1.70-1.80	0.60-2.00	0.11-0.13	0.0-3.0	.20	.28			
Ensley	0-5	 	 	0.60-2.00		 			   4	   2	134
FusieA	5-7	1		0.60-2.00	1	1	1	1	**	<b>4</b> 	1 134
	7-19			0.60-2.00				.28	 	İ	
	19-80			0.60-2.00			.15	.28	 	l I	l I
	_, ,,	5 25		0100 2100			125	120	İ	<u> </u>	
93:		İ	i			İ	İ	İ	İ	i	İ
Tawas	0-26		0.20-0.30	0.20-6.00	0.35-0.45	i	j	i	4	2	134
j	26-80	0-3	1.20-1.57	6.00-20.00	0.07-0.09	0.0-3.0	.15	.15	ĺ	ĺ	ĺ
Deford	0 - 4			0.60-6.00					5	2	134
	4-80	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
									ļ	!	ļ
95B:							ļ				
Liminga	0-1			6.00-20.00					5	1	250
	1-7			6.00-20.00 6.00-20.00				.15			
	7-9 9-22			6.00-20.00				1	 		
	22-31			6.00-20.00				.15	 	 	l I
	31-80			6.00-20.00				.15		İ	
	J_ 30	0.5		2.20 20.00		0.0 2.7	.13			İ	i
104C:		İ					i	i	i	i	i
Fence	0-3	2-10	  1.35-1.55	0.60-2.00	0.20-0.22	0.0-2.9	.37	.37	   5	3	86
	3-7			0.60-2.00				.37	i	į	İ
i	7-11			0.60-2.00					į	į	İ
i	11-19			0.60-2.00				.43	į	İ	İ
i	19-42	10-25	1.35-1.55	0.20-0.60	0.18-0.20	3.0-6.0	.43	.43			
					0.17-0.19						

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	   Clay	Moist	Permea-	  Available	!	Erosi	on fact			Wind  erodi-
and soil name		 	bulk	bility	water	extensi-	77	   Kf	!		
	In	Pct	density   g/cc	(Ksat) In/hr	capacity   In/in	bility   Pct	K		<u>+</u> 	group	Index
		İ		•	, 		i	İ		İ	i
109D:							ļ	ļ			
Rousseau	0-1			6.00-20.00					5	1	250
	1-4			6.00-20.00			.15	1.15			
	4-20			6.00-20.00			1.15	1.15	 		
	20-33 33-66			6.00-20.00			1.15	.15   .15	 	l I	
	66-80			6.00-20.00			1.15	.15			
Dawson	0-10	 	  0 05-0 15	6.00-20.00	  0 55-0 65	 		 	   4	   8	   0
Dumbon	10-20			0.60-6.00			i		•	0	
	20-38			0.20-6.00			i			i	i
	38-80			6.00-20.00			.15	.15		į	
109F:		 	 		 	 		 	 		
Rousseau	0-1			6.00-20.00			i	i	5	1	250
	1-4	0-10	1.30-1.55	6.00-20.00		0.0-2.9	.15	.15	İ	i	i
	4-20	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15	İ	İ	į
	20-33	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	İ	İ	į
	33-66	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	66-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Dawson	0-10	 	  0.05-0.15	6.00-20.00	  0.55-0.65	 		 	   4	   8	0
	10-20	i	0.10-0.17	0.60-6.00	0.45-0.55	i	j	i	İ	İ	į
	20-38		0.13-0.23	0.20-6.00	0.35-0.45				ĺ	ĺ	ĺ
	38-80	0-10	1.50-1.70	6.00-20.00	0.03-0.10	0.0-2.9	.15	.15			
125B:		 	 			 		 	 	 	
Stutts	0-1		0.10-0.20	2.00-6.00					5	2	134
	1-2	0-8	1.30-1.60	2.00-6.00	0.12-0.18	0.0-2.9	.24	.24			
	2-7	2-8	1.30-1.65	2.00-6.00	0.12-0.18	0.0-2.9	.24	.24			
	7 - 9			2.00-6.00			.24	.24			
	9-13			2.00-6.00			.24	.24			
	13-19			2.00-6.00			.24	.24		!	!
	19-80	0-5 	1.55-1.65  	6.00-20.00	0.04-0.07 	0.0-2.9 	.15	.15 	 	 	 
Kalkaska	0-1	i		6.00-20.00			i	i	5	2	134
	1-6			6.00-20.00			.17	.17		!	!
	6-8			6.00-20.00			.17	.17			
	8-12			6.00-20.00			.17	.17			
	12-23			6.00-20.00			.15	.15			
	23-38 38-80			6.00-20.00 6.00-20.00			15	.15   .15	 	 	 
		į					į	į	ĺ	į	į
125D: Stutts	0-1	l I	  0.10-0.20	2.00-6.00	 	 		 	   5	   2	   134
	1-2			2.00-6.00			.24	.24	-	, <u> </u>	
	2-7			2.00-6.00			1			i	i
	7 - 9			2.00-6.00			.24	.24	İ	İ	i
	9-13			2.00-6.00			.24	.24	İ	İ	i
	13-19	4-10	1.35-1.70	2.00-6.00	0.11-0.17	0.0-2.9	.24	.24	İ	İ	İ
	19-80	0-5	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15		ĺ	
Kalkaska	0-1	 	 	6.00-20.00	 	 		 	   5	   2	   134
	1-6	3-8		6.00-20.00		0.0-2.9	.17	.17			
j	6 - 8	3-8	1.30-1.60	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17		[	
j	8-12	1-8	1.30-1.70	6.00-20.00	0.06-0.11	0.0-2.9	.17	.17			
j	12-23	0-5	1.30-1.70	6.00-20.00	0.03-0.08	0.0-2.9	.15	.15			
	23-38			6.00-20.00			.15	.15			
	38-80			6.00-20.00			.15	.15			

Table 17.--Physical Properties of the Soils--Continued

Map symbol	   Depth	Clay	   Moist	Permea-	  Available	Lincar	Erosi	on fac	cors	Wind  erodi-	Wind erodi-
and soil name	Depth	Clay	bulk	bility	water	extensi-		1		bility	
and soll name	! 	l I	density	(Ksat)	capacity	bility	K	Kf	   т	group	
	In	Pct	g/cc	In/hr	In/in	Pct			-		
125E:					 						
Stutts	0-1	 	  0.10-0.20	2.00-6.00	 	 			   5	   2	   134
bcuccs	0.2-2	1	1.30-1.60			1	.24	.24	]	4	131
	2-7		1.30-1.65				.24	.24	 	i i	 
	7-9			2.00-6.00			.24	.24		i	i
	9-13	4-10	1.35-1.70	2.00-6.00	0.11-0.17	0.0-2.9	.24	.24	İ	i	İ
	13-19	4-10	1.35-1.70	2.00-6.00	0.11-0.17	0.0-2.9	.24	.24	İ	į	į
	19-80	0-5	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Kalkaska	0-1	 		6.00-20.00	 	 			   5	2	134
	1-6	3-8	1.35-1.65	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17	İ	į	į
	6-8	3-8	1.30-1.60	6.00-20.00	0.10-0.12	0.0-2.9	.17	.17	ĺ	İ	ĺ
	8-12			6.00-20.00			.17	.17			
	12-23			6.00-20.00			.15	.15			
	23-38			6.00-20.00			.15	.15			
	38-80	0-5	1.55-1.75	6.00-20.00	0.02-0.06	0.0-2.9	.15	.15	 		 
135B:					! 		İ				
Munising	0-1			0.60-2.00					4	2	134
	1-3	5-10	1.30-1.60	0.60-2.00	0.14-0.18	0.0-3.0	.20	.24			
	3-6			0.60-2.00			.20	.24			
	6-23			0.60-2.00		1	.20	.24			
	23-38			0.00-0.06		1	.15	.17			
	38-50		1.80-1.90			1	.20	.24			
	50-63 63-80		1.60-1.80   1.60-1.85		0.11-0.14	1	1.15	.24	 		 
	į	į				į	į	į	į	į	į
Ensley	0-5			0.60-2.00					4	2	134
	5-7		1.10-1.35		0.19-0.21		.32	.37			
	7-19   19-80		1.50-1.85   1.70-1.80		0.10-0.19 0.10-0.19	1	.20	.28	 	 	 
		i								i	
145C: Munising	0-1	 	 	0.60-2.00	 	 		 	   4	   4	   86
Munising	1-2	1	  1.35-1.60			1	.24	.24	** 	4	00 
	2-10		1.30-1.65				1.17	1 .17	l I	 	 
	10-14			0.60-2.00			.24	.24			İ
	14-22		1.35-1.70			1	.24	.24	<u> </u>	i	İ
	22-49			0.00-0.06	0.02-0.04	0.0-2.9	.24	.24	İ	i	İ
	49-63	10-35	1.35-1.70	0.60-2.00	0.03-0.05	0.0-2.9	.24	.24	İ	į	į
	63-80	6-12	1.70-1.80	0.60-2.00	0.03-0.05	0.0-2.9	.20	.24		İ	
Yalmer	   0-1	 	 	6.00-20.00	 	 			   4	   4	   86
	1-3	0-6	1.30-1.65	6.00-20.00		0.0-2.9	.15	.17	İ	i	ĺ
	3-8			6.00-20.00			.15	.17	İ	i	į
	8-11	0-6	1.40-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15	İ	į	į
	11-24	0-6	1.40-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	24-40			0.00-0.06		1	.15	.17			
	40-66			0.60-2.00		1	.17	.24			
	66-80	8-14 	1.60-1.80  	0.60-2.00	0.03-0.05	0.0-2.9	.17	.24	 	 	 
146B:	İ				İ	İ					
Munising	0-1			0.60-2.00					4	2	134
	1-2			0.60-2.00	•		.24	.24			
	2-10			0.60-2.00							ļ
	10-14			0.60-2.00				.24			
	14-22			0.60-2.00		1		.24			
	22-49			0.00-0.06	•		.24	.24			 
	49-63	10-35	1.35-I./0	0.60-2.00	0.03-0.05	0.0-∠.9	.24	.24		1	I
	63-80	6.10	1 70-1 00	0.60-2.00	U U3-U UE	0 0 2 0	.20	.24	1	1	1

Table 17.--Physical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Clay	Moist     bulk	Permea- bility	Available water	Linear		on fact	1	erodi-	
and soll name		 	bulk     density	(Ksat)	capacity	bility	   K	   Kf	   т	group	
	In	Pct	g/cc	In/hr	In/in	Pct	1		-	group	l
į		j			į ·	į	i	i	İ	į	j
146B:						[	1	[			
Skanee	0-2			0.60-2.00					4	2	134
ļ	2-8		1.20-1.50		0.09-0.18	1	.20	.24			
ļ	8-14 14-31		1.35-1.60   1.80-2.10		0.14-0.17	1	.20	.24	 		 
	31-42		1.80-2.10   1.35-1.70		0.02-0.04		.32	37	 	1	 
ļ	42-80		1.55-1.70		0.03-0.05		.20	.24			
   147A:		 	 			[ 		[ [	 		 
Skanee	0-2	 	 	0.60-2.00					4	4	86
	2-8	2-10	1.20-1.50	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24	İ	İ	ĺ
į	8-14	2-10	1.35-1.60	0.60-2.00	0.14-0.17	0.0-2.9	.20	.24	İ	į	İ
	14-31	4-12	1.80-2.10	0.00-0.06	0.02-0.04	0.0-2.9	.20	.24			
	31-42	10-35	1.35-1.70	0.60-2.00	0.03-0.05	0.0-2.9	.32	.37			
	42-80	6-12	1.55-1.70	0.60-2.00	0.03-0.05	0.0-2.9	.20	.24	 		 
Gay	0 - 4	 	0.20-0.30	0.20-6.00	0.35-0.45			 	5	5	   56
	4-7	2-10	1.10-1.50	0.60-2.00	0.07-0.18	0.0-2.9	.24	.24			
	7-11		1.10-1.60		0.07-0.15	1	.24	.24			
	11-16		1.50-1.85		0.10-0.18	1	.20	.24			
	16-80	6-12	1.70-1.80	0.60-2.00	0.09-0.13	0.0-2.9	.20	.24	 		 
148B:											
Shoepac	0-2		i i	0.60-2.00					4	3	56
	2-6	0-6	1.35-1.60	0.60-2.00	0.15-0.24	0.0-2.9	.32	.37			
	6-12		1.25-1.35		0.13-0.17	1	.20	.24			
ļ	12-23		1.30-1.60		0.08-0.11	1	.15	.17		ļ	
ļ	23-33		1.55-1.85		0.08-0.15	1	.15	.17			
	33-53 53-80		1.35-1.80   1.60-1.80		0.13-0.17	1	1.17	.24	 	l I	 
i	33 00	3 12		0.20 0.00			.13				! 
Ensley	0 - 5	i	j j	0.60-2.00	i	i	j	j	4	2	134
	5-7	7-20	1.10-1.35	0.60-2.00	0.19-0.21	0.0-3.0	.32	.37			
	7-19		1.50-1.85		0.10-0.19	1	.20	.28			
	19-80	5-15	1.70-1.80	0.60-2.00	0.10-0.19	0.0-3.0	.15	.28	 		 
155A:		! 									
Zeba	0-2		1.30-1.60		0.13-0.15	0.0-2.9	.15	.24	4	5	56
	2-5		1.30-1.60		0.13-0.18	1	.15	.24			
ļ	5-13		1.35-1.70		0.11-0.16	1	.15	.24			
	13-33 33-80	5-15	1.35-1.70	0.60-2.00	0.09-0.14	0.0-2.9	.20	.24	 	1	 
ļ	33-00	 		0.00-0.20					 		! 
Jacobsville	0-5	j	0.20-0.30	0.20-6.00	0.35-0.45	j	j	j	4	3	86
	5 - 9			0.60-2.00							
ļ	9-23			0.60-2.00						ļ	
	23-36 36-80	6-15 		0.60-2.00 0.00-0.20	0.10-0.17	0.0-2.9	.20	.24	 	1	 
Ï		İ	i i	0.00						İ	
157B:			ļ								
Reade	0-4			0.60-2.00	1				4	5	56
	4-7 7-9			0.60-2.00					 	1	l I
	7-9 9-15			0.60-2.00 0.60-2.00					 	1	l I
l I	15-20			0.60-2.00					 		! 
ļ	20-28			0.60-2.00				.24	<u>'</u>	i	İ
į	28-80			0.00-0.20					İ	İ	İ
į			ı i					1			l

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	   Clay	   Moist   bulk	   Permea-   bility	  Available   water	   Linear  extensi-	LECS1	on fact		wind  erodi-  bility	
and soll name		 	density	(Ksat)	capacity	bility	   K	   Kf		group	
	In	Pct	g/cc	(RSac)   In/hr	In/in	Pct			-	group 	Index
				į	į	į	į	į	į	į	į
157B: Nahma	0-11	 	  n 2n=n 3n	0.60-2.00	  0 35-0 45	 		 	   4	   2	   134
T GILLIG	11-14		1.10-1.60		1	1	.43	.43	-	-	131
	14-17		1.10-1.60		0.14-0.24	1	1		İ	i	İ
	17-19		1.48-1.80		1	1	.43		İ	i	İ
	19-24	5-20	1.46-1.80	0.60-2.00	0.09-0.16	0.0-2.9	.24	.28	į	į	į
	24-80			0.00-0.60							
158C:			 								
Munising	0-1			0.60-2.00					4	2	134
	1-2			0.60-2.00			.24	.24			
	2-10		1.30-1.65				1	.17			
	10-14			0.60-2.00	1	1	1				
	14-22			0.60-2.00	1	1	1	.24			
	22-49			0.00-0.06	1	1	.24	.24			
	49-63 63-80		1.35-1.70  1.70-1.80		0.03-0.05		.24	.24	 	 	 
	03-00	0-12	1.70-1.80	0.00-2.00		0.0-2.9	.20	.23			
Abbaye	0-2		1	0.60-2.00			1		4	3	86
	2-4		1.35-1.65		1	1	.20	.24			
	4-13		1.35-1.65				.15	.17			
	13-25		1.35-1.70		1	1	1				
	25-32 32-80	8-15	1.30-1.70 	0.60-2.00	0.09-0.17	0.0-2.9	.20	.24			
	32-60	 	 	0.00-0.20					 		 
160B:				į	į	į	į	į	į	į	į
Paquin	0-2			6.00-20.00	1				2	1	220
	2-12			6.00-20.00			.15	.15			
	12-14			6.00-20.00			.15	1.15			
	14-17 17-27		1.65-1.80  1.65-1.80				1.15	.15   .15	 		 
	27-34		1.45-1.60		1	1	1	.15	 	 	l I
	34-80		1.50-1.70				.15	.15			
Finch	0 1										
Finch	0-1 1-11	   0-3	  1.20-1.57	6.00-20.00 6.00-20.00	1	0.0-2.9	1.15	   .15	2	1	220
	11-42		1.65-1.80				1.15	.15	 	 	l I
	42-80		1.50-1.65		1	1	1.15	1.15			
161B:		 	 								
Yellowdog	0-2	 	 	20.00-60.00	 	 		 	4	   1	160
	2-32	0-2	1.30-1.60	20.00-60.00	0.00-0.02	0.0-2.9	.02	.10	İ	į	į
	32-80			0.00-0.20						İ	
Buckroe	0-2	 	 	6.00-20.00	 	 		 	   2	2	   134
	2-4	2-7	1.40-1.65	20.00-60.00	1	0.0-2.9	.02	.10	İ	i	İ
	4-15	0-5	1.40-1.65	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10	İ	i	į
	15-80			0.00-0.20						İ	
165B:		 	 	 	 	 		 			 
Chocolay	0-2			0.60-2.00				i	4	3	86
j	2-3	5-10	1.30-1.60	0.60-2.00	0.06-0.12	0.0-2.9	.10	.24			
	3 - 8			0.60-2.00			.05	.24			
	8-14			0.60-2.00	1	1		.24			
	14-27			0.60-2.00		!	.05	.24			
	27-80		 	0.00-0.20	 	 		 		[ [	 
Waiska	0-1			20.00-60.00	1				5	3	86
	1-4			20.00-60.00			.15	.15			
	4-8			20.00-60.00				.10			
	8-18			20.00-60.00				.10		!	ļ
	18-80	0-5	11.50-1.60	20.00-60.00	10.01-0.03	0.0-2.9	.02	.10	1	1	1

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	   Clay	   Moist	   Permea-	  Available	   Linos=	Erosi	on fact	ors		Wind  erodi-
and soil name	рерсп	Clay	Moist   bulk	Permea-   bility	water	extensi-		I I		erodi-  bility	1
and soll name		 	density	(Ksat)	capacity	bility	K	Kf		group	
	In	Pct	g/cc	In/hr	In/in	Pct	K			group 	Index
				,	,		i	i i		İ	i
166:		[			]		1			[	
Skandia	0 - 4			0.60-6.00	1	:			4	5	56
	4-26	1	0.20-0.30		0.35-0.45						
	26-31 31-80	 	 	0.20-0.60	 	 				l I	
	31 00		 	0.00 0.20		 	i				i
167:		į	İ	j	į	j	į	i i		į	į
Skandia		1		0.60-6.00					4	6	48
	4-26	1		0.60-6.00	!					!	!
	26-31			0.20-0.60							
	31-80		 	0.00-0.20						l I	
Jacobsville	0-5		0.20-0.30	0.20-6.00	0.35-0.45	 			4	2	134
	5-9			0.60-2.00	1		.20	.24		i	i
į	9-23	7-15	1.50-1.85	0.60-2.00	0.10-0.17	0.0-2.9	.20	.24		İ	į
	23-36	6-15	1.70-1.80	0.60-2.00	0.10-0.17	0.0-2.9	.20	.24			
	36-80			0.00-0.20						ļ	
1500											
L70B:   Chocolay	0-2	 	 	0.60-2.00	 	 			4	   3	   86
Chocoray	2-3	1	1	0.60-2.00	1	l	1.10	.24	-	3	00
	3-8			0.60-2.00			.05	1 1		 	i
i	8-14			0.60-2.00	1		.05	.24		i	i
į	14-27	4-10	1.35-1.80	0.60-2.00	0.05-0.12	0.0-2.9	.05	.24		į	į
	27-80			0.00-0.20							
.71B:   Paavola	0-2	 	 	   2.00-6.00	 	 			4	   6	   48
raavora	2-6	1	1	6.00-20.00	1	1	.10	.17	-	1	40
	6-15			20.00-60.00			.02	1 1		<u> </u>	i
	15-31			20.00-60.00	1		.02	.10		İ	i
į	31-59	8-15	1.80-2.10	0.00-0.06	0.02-0.04	0.0-2.9	.10	.24		İ	į
	59-80	5-12	1.80-2.10	0.00-0.06	0.02-0.04	0.0-3.0	.15	.24			
T05											
	0-2	 	 	6.00-20.00	 	 			2	   3	   86
Buckroe	2-4	1	1	20.00-60.00	1	l	.02	1.10	4	3	00
	4-15			20.00-60.00	1		.02	1 1		 	i
	15-80			0.00-0.20				i i		İ	i
İ		ĺ		ĺ			İ	į į		ĺ	ĺ
Rock outcrop.		ļ					-			ļ	!
   L72F:			  -	 	 	  -					
Buckroe	0-2	 	 	6.00-20.00	 	 			2	   3	   86
			•	20.00-60.00		•	1	1	_		
i	4-15	0-5	1.40-1.65	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		İ	i
İ	15-80			0.00-0.20						ĺ	ĺ
_		ļ					-			ļ	!
Rock outcrop.			 			l I					
L76B:		 	 	 	 	 				 	
Croswell	0-2	i	0.10-0.20	0.60-6.00	0.45-0.55			i i	5	1	220
	2-6			6.00-20.00			.15	.15		İ	i
į	6-15	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
				6.00-20.00						ļ	1
	22-80	0-10	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15		[	
Kinross	0-3	 	  0.10-0.35	   6.00-20.00	  0.35_0.45	 		 	3	   2	   134
VIUIODD	3-14			6.00-20.00	1			,	٥	<del>4</del> 	134
	14-22			6.00-20.00			1.15	1 1		i	i
	22-35			6.00-20.00				.15		İ	i
i	35-80			6.00-20.00			.15	.15			
į								l į			

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	Clay	   Moist	   Permea-	  Available			on fac	Lors	erodi-	1
and soil name			bulk	bility	water	extensi-				bility	
			density	(Ksat)	capacity	bility	K	Kf	T	group	index
	In	Pct	g/cc	In/hr	In/in	Pct	ļ				
  81E:			 	 	 	  -			 		
Frohling	0-1	 	 	0.60-2.00	  0 45-0 55	 			   3	   5	   56
rioniing	1-2	5-10	1.30-1.60	1			.17	.24	]	3	50
	2-7			0.60-2.00			.17	.24	 	i	i
i	7 - 9		1.35-1.60				.17	.24	İ	İ	i
į	9-16	5-10	1.35-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.17	.24	İ	İ	į
	16-34	3-8	1.80-1.90	0.00-0.06	0.02-0.04	0.0-2.9	.15	.17			
	34-80	5-12	1.80-1.90	0.00-0.06	0.02-0.04	0.0-2.9	.20	.24			
							!				
Tokiahok	0-2			6.00-20.00					4	3	86
	2-11 11-15		1.35-1.65	6.00-20.00			1.15	.17   .17	 		
	15-24			6.00-20.00				.17	 	l I	
	24-59			0.00-0.06				.24	 	 	
	59-80		1.60-1.80	1			.20	.24	 	 	
	0,00	0 20								<u> </u>	i
.85B:		İ	İ	İ		İ	į	i	i	i	i
McMaster	0-2		0.20-0.30	2.00-6.00	0.35-0.45	i	j		3	3	56
j	2-4	3-10	1.30-1.60	2.00-6.00	0.09-0.13	0.0-3.0	.10	.24	ĺ	ĺ	ĺ
	4-8	0-5	1.30-1.65	2.00-6.00	0.07-0.11	0.0-3.0	.10	.17			
	8-11			2.00-6.00			.10	.24			
	11-24			6.00-20.00				.17			
	24-39			20.00-60.00			.02	.10		!	!
	39-80	0-5	1.50-1.70	20.00-60.00	0.01-0.02	0.0-3.0	.02	.10			
.86B:			l I	l I	l I	 			 		
Chatham	0-1	 	  0.20-0.30	0.60-2.00	  0 35-0 45	 			   5	   4	   86
	1-6	1	1.30-1.60	1			.15	.24	]	-	
	6-20		1.35-1.70	1			.15	.24		<u> </u>	i
i	20-39		1.35-1.70	1				.24		i	i
į	39-80	0-10	1.55-1.80	2.00-6.00	0.03-0.12	0.0-2.9	.02	.24	į	į	į
.86D:											
Chatham	0-1		'	0.60-2.00					5	4	86
	1-6		1.30-1.60	1			.15	.24			
	6-20		1.35-1.70	1				.24			
	20-39 39-80		1.35-1.70  1.55-1.80	1			1.10	.24	 		
	33-00	0-10	1.33-1.60	2.00-0.00	0.03-0.12	0.0-2.9	.02	.24	 	 	
.87B:		 	 	 		] 	i	İ	 	 	
Reade	0-4			0.60-2.00					4	5	56
į	4-7	0-12	1.35-1.60	0.60-2.00	0.15-0.24	0.0-2.9	.32	.37	İ	į	İ
j	7 - 9	4-15	1.40-1.70	0.60-2.00	0.14-0.19	0.0-2.9	.24	.32	ĺ	ĺ	ĺ
	9-15	0-12	1.35-1.70	0.60-2.00	0.15-0.22	0.0-2.9	.17	.24			
	15-20			0.60-2.00		•	.15	.24			
	20-28		'	0.60-2.00		!		.24		!	!
	28-80			0.00-0.20							
000		 			l I		1				
.88B: Eben	0 - 6	   5_12	  1 30_1 60	2.00-6.00	   0 05_0 10	0 0-3 0	.05	.24	   4	   5	   56
EDen	6-22		•	2.00-6.00		•		.24	<del>"</del> 	5	56
	22-25		'	2.00-6.00				1.17	 	l I	
	25-35		'	6.00-20.00				1.15	<u> </u>	İ	i
	35-80		'	20.00-60.00				1.10	i	i	i
i			İ	İ		İ	İ	i	İ	į	i
.88D:											
Eben	0 - 6	5-12	1.30-1.60	2.00-6.00	0.05-0.10	0.0-3.0	.05	.24	4	5	56
	6-22			2.00-6.00		•		.24			
I	22-25			2.00-6.00				.17		ļ	
								1 1 -			
į	25-35 35-80			6.00-20.00  20.00-60.00			.02	.15			

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	Clay	Moist	Permea-	  Available	1		on fact		erodi-	Wind  erodi-
and soil name			bulk	bility	water	extensi-				bility	
		l	density	(Ksat)	capacity	bility	K	Kf	Т	group	index
	In	Pct	g/cc	In/hr	In/in	Pct					
   188E:		 	 	 	 	 		 		 	 
Eben	0-6	5-12	1.30-1.60	2.00-6.00	0.05-0.10	0.0-3.0	.05	.24	4	5	56
j	6-22	5-12	1.35-1.70	2.00-6.00	0.05-0.10	0.0-3.0	.05	.24		ĺ	ĺ
	22-25	4-10	1.35-1.70	2.00-6.00	0.04-0.07	0.0-3.0	1.10	.17			
	25-35			6.00-20.00			.02	.15			
	35-80	0-5	1.55-1.65	20.00-60.00	0.02-0.04	0.0-3.0	.02	.10			
191B:		l I		 	l 	! 				l I	 
Ruse	0 - 7	1	1		0.14-0.24	0.0-2.9	.28	.28	2	5	56
	7-11	0-20	1.50-1.80	0.60-6.00	0.11-0.15	0.0-2.9	.24	.24			
	11-15	0-20	1.50-1.80	0.60-6.00	0.10-0.14	0.0-2.9	.24	.24			
	15-80			0.00-0.60							
Ensign	0-1	 	0.10-0.20	0.60-2.00	0.45-0.55	 			   2	   3	   86
. 3	1-5				0.08-0.24	1	.24	.24		i	İ
į	5-8	4-12	1.35-1.70	0.60-2.00	0.08-0.24	0.0-2.9	.24	.24		į	į
j	8-15	4-12	1.35-1.70	0.60-2.00	0.08-0.24	0.0-2.9	.24	.24		ĺ	ĺ
	15-80			0.00-0.60						[	
 197B:		 	 	l I	 	 	1	 		 	 
Shoepac	0-2	i		0.60-2.00					4	3	56
i	2-6	0-6	1.35-1.60	0.60-2.00	0.15-0.24	0.0-2.9	.32	.37		İ	İ
į	6-12	2-8	1.25-1.35	0.60-2.00	0.13-0.17	0.0-3.0	.20	.24		į	į
j	12-23	1-5	1.30-1.60	0.60-2.00	0.08-0.11	0.0-3.0	.15	.17		ĺ	ĺ
	23-33	4-14	1.55-1.85	0.60-2.00	0.08-0.15	0.0-3.0	.15	.17			
	33-53				0.13-0.17		.17	.24			
	53-80	5-12	1.60-1.80	0.20-0.60	0.10-0.14	0.0-3.0	.15	.24			 
Trenary	0-2	1-10	1.30-1.60	0.60-2.00	0.11-0.24	0.0-2.9	.28	.28	5	3	86
j	2-6	2-8	1.30-1.60	0.60-2.00	0.14-0.24	0.0-3.0	.20	.24		ĺ	ĺ
	6-12	2-8	1.35-1.65	0.60-2.00	0.14-0.24	0.0-3.0	.20	.24			
	12-17	4-12	1.35-1.70	0.60-2.00	0.13-0.17	0.0-3.0	.20	.24			
	17-26				0.10-0.14		.20	.24			
					0.15-0.17		.28	.32			
	37-80	5-14	1.70-1.85	0.60-2.00	0.10-0.15	0.0-3.0	.20	.28		 	 
198B:		İ		İ	İ	İ	i	i		İ	İ
Shoepac	0-2			0.60-2.00					4	3	56
	2-6				0.15-0.24		.32	.37			
	6-12				0.13-0.17	1	.20	.24		!	!
	12-23				0.08-0.11		.15	.17			
	23-33 33-53			0.60-2.00	0.08-0.15		1.15	1.17			
	53-53			0.80-2.00	!	!	1.15	.24		 	 
	55 55	3					123			İ	İ
Reade	0 - 4		1	0.60-2.00					4	5	56
	4-7			0.60-2.00		!	.32	.37			!
	7-9			0.60-2.00	1	1		.32			
	9-15 15-20			0.60-2.00			1	.24			
	20-28			0.60-2.00			1.15	.24		l I	l I
	28-80			0.00-0.20						İ	 
į		į	į	į	į	į	į	į		į	į
200A:   Charlevoix	0-2		0 20-0 30	0.60-2.00	0 35-0 45	 		 	   5	   4L	   86
CHALLEACTY	0-2 2-5			0.60-2.00			.28	   .37	3	47	30
	2-3 5-7			0.60-2.00				.43		İ	İ
	7-12			0.60-2.00				.43		i	İ
	12-16			0.60-2.00			.17	.24		İ	İ
										:	i
i	16-27	10-16	1.60-1.80	0.60-2.00	0.15-0.17	0.0-2.9	.17	.24			

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	Clay	Moist	Permea-	  Available	!		on fact		erodi-	Wind  erodi-
and soil name			bulk	bility	water	extensi-	_		_	bility	
	In	Pct	density g/cc	(Ksat)	capacity   In/in	bility   Pct	K	Kf	T	group	index
			9/00	111/111	111/111						
200A:		<u> </u>									
Ensley	0-5			0.60-2.00					4	2	134
	5-7		1.10-1.35		0.19-0.21	1	.32	.37			
	7-19 19-80		1.50-1.85  1.70-1.80	0.60-2.00	0.10-0.19	1	.20   .15	.28 .28	 	 	
		İ	İ	İ	İ	İ	į	į į	ĺ	į	į
202B: Sauxhead	0-1	 	 	   2.00-6.00	 	 			   2	   5	   56
Sauxileau	1-4	1	1.30-1.60	1	1	I.	.20	.24	4	]	1 30
	4-14			20.00-60.00			.05	.17	 	i i	
	14-17			0.20-0.60						İ	
	17-80	i		0.00-0.20						İ	İ
206B:			 						 		
Traunik	0-1	 	0.20-0.30	0.60-2.00	0.35-0.45	 			4	3	86
	1-4			0.60-2.00			.15	.24	i	i	İ
	4-11	4-10	1.35-1.65	0.60-2.00	0.12-0.14	0.0-3.0	.15	.24	į	į	İ
j	11-24	0-5	1.40-1.65	20.00-60.00	0.02-0.04	0.0-3.0	.02	.10	ĺ	İ	
	24-31	0-5	1.55-1.65	20.00-60.00	0.02-0.04	0.0-3.0	.02	.10			
	31-80	0-5	1.55-1.65	20.00-60.00	0.02-0.04	0.0-3.0	.02	.10			
206D:		 	 	 	 	 			 		 
Traunik	0-1	i	0.20-0.30	0.60-2.00	0.35-0.45	i	i		4	3	86
j	1-4	4-10	1.30-1.60	0.60-2.00	0.12-0.14	0.0-3.0	.15	.24	ĺ	İ	
	4-11	4-10	1.35-1.65	0.60-2.00	0.12-0.14	0.0-3.0	.15	.24			
	11-24			20.00-60.00			.02	.10			
	24-31			20.00-60.00			.02	.10			
	31-80	0-5 	1.55-1.65 	20.00-60.00	0.02-0.04	0.0-3.0	.02	1.10	 	 	l I
211B:		İ	İ	İ		İ				İ	İ
Munising	0-1			0.60-2.00					4	2	134
	1-2	0-10	1.35-1.60	0.60-2.00	0.08-0.18	0.0-2.9	.24	.24			
	2-10		1.30-1.65			1	.17	.17			
	10-14		1.35-1.70		0.11-0.17		.24	.24			
	14-22		1.35-1.70		0.11-0.17	1	.24	.24			
	22-49 49-63		1.80-2.10 1.35-1.70		0.02-0.04	1	.24	.24	 		
	63-80		1.70-1.80		0.03-0.05	1	.20	.24	 		 
		İ	İ	İ	İ	İ	į	į į	ĺ	į	į
Abbaye	0-2			0.60-2.00					4	3	86
	2-4		1.35-1.65		0.13-0.18		.20	.24			
	4-13 13-25		1.35-1.65		0.13-0.18 0.11-0.17		.15	1.17	l I	 	l I
	25-32			0.60-2.00	:	:	.20	.24	 	 	
	32-80			0.00-0.20							
214B: Kalkaska	0-2	   0-10	  1 30_1 55	   6.00-20.00	  n_ns_n_ng	0 0-2 9	1.15	   .15	   5	   1	   220
Rainabha	2-6			6.00-20.00				.15		-	220
	6-8			6.00-20.00				1		İ	
	8-16		1	6.00-20.00		1		.15	İ	i	İ
	16-26			6.00-20.00					İ	į	İ
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Blue Lake	0-2	 	 	   2.00-6.00	 	 			   5	   2	   134
Dide Have	2-7	1	1	2.00-6.00		1	.15			4	134
	7-9			2.00-6.00						i	i
	9-27			2.00-6.00				1.17		i	İ
	27-80			2.00-6.00			.15	.17	İ	i	İ
		İ	İ	İ	İ	į	į	i	İ	i	İ

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	   Clay 	   Moist   bulk	   Permea-   bility	  Available   water	   Linear  extensi-	LECS1	on fac	 	wind  erodi-  bility	
and soll name		 	density	(Ksat)	capacity	bility	K	   Kf	   •••	group	
	In	Pct	g/cc	In/hr	In/in	Pct			-	 	
214D:											
Z14D: Kalkaska	0-2	   0_10	  1 20_1 55	   6.00-20.00	 	0.0-2.9	1 .15	1 .15	   5	   1	   220
Raikaska	2-6		1	6.00-20.00		1	1.15	1.15	]	+	220
	6-8		1	6.00-20.00		1	1.15	1.15	 	 	l I
	8-16			6.00-20.00			1.15	.15	 		i I
	16-26			6.00-20.00			.15	.15		i	i
	26-80			6.00-20.00			.15	.15	į	į	į
Blue Lake	0-2	 	 	   2.00-6.00		 			   5	2	   134
	2-7	0-8	1.35-1.65	2.00-6.00	0.09-0.12	0.0-3.0	.15	.17	ĺ	İ	ĺ
	7 - 9	0-8	1.30-1.70	2.00-6.00	0.06-0.11	0.0-3.0	.15	.17			
	9-27	0-8	1.30-1.70	2.00-6.00	0.06-0.11	0.0-3.0	.15	.17			
	27-80	0-10	1.35-1.65	2.00-6.00	0.07-0.10	0.0-3.0	.15	.17	 		
214E:			İ			İ					
Kalkaska				6.00-20.00			.15	.15	5	1	220
	2-6			6.00-20.00			.15	.15			
	6-8		1	6.00-20.00		1	.15				
	8-16			6.00-20.00 6.00-20.00			.15	.15			
	16-26 26-80			6.00-20.00			.15	.15   .15	 		 
Blue Lake	0 0		 	2.00-6.00		 		 	   5	2	134
Biue Lake	0-2 2-7	1	1.35-1.65		l.	I	1.15		<b>ɔ</b>	4	134
	7-9		1.30-1.70		0.09-0.12		1.15	1.17	 	 	 
	9-27		1.30-1.70		0.06-0.11		1.15	1.17	 	 	 
	27-80		1.35-1.65		0.07-0.10	1	.15	.17			į
221B:			 	 		 	 	 	 	 	 
Jeske	0-3		0.30-0.40	6.00-20.00	0.35-0.45	i	j	i	2	1	220
	3-21	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	İ	į	į
	21-31			0.20-0.60	0.01-0.02						
	31-80			0.00-0.20					 		
Au Train	0-2			6.00-20.00					2	1	180
	2-9	0 - 4	0.90-1.50	6.00-20.00	0.07-0.09	0.0-3.0	.15	.15			
	9-14		1.45-1.70		0.07-0.09	0.0-3.0	.15				
	14-32			0.20-0.60							
	32-80	 	 	0.00-0.20	 	 			 	 	 
Gongeau	0 - 5		0.30-0.40	6.00-20.00	0.35-0.45		i		2	2	134
	5-7		1.35-1.50				.17	.17			
	7-18			6.00-20.00		!	.15	.15			
	18-29			0.20-0.60			1				
	29-80		 	0.00-0.20	 	 			 	 	 
225B:	0 0	 						İ			
Cusino	0-2		1	6.00-20.00			1		5	2	134
	2-8 8-10			6.00-20.00 6.00-20.00					 	 	 
	10-17		1	6.00-20.00		1	1		I I		I I
	17-80			20.00-60.00			1.10	1.10			
225D:		 	 	 	 	 		 	 	 	 
Cusino	0-2			6.00-20.00					5	2	134
	2-8	0-8	1.35-1.65	6.00-20.00	0.09-0.12	0.0-2.9	.15	.17	İ	İ	İ
İ	8-10	0-10	1.30-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.17			
	10-17	0-5	1.30-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
				20.00-60.00							

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	   Clay	Moist	Permea-	  Available	Linear		on fac	COLS	erodi-	Wind  erodi-
and soil name	-	j	bulk	bility	water	extensi-				bility	bility
		į	density	(Ksat)	capacity	bility	K	Kf	т	group	index
	In	Pct	g/cc	In/hr	In/in	Pct	[	<u> </u>	[	Ţ.	!
226B:		 	 	 	 	 		 	 		
Kalkaska	0-2	0-10	  1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	   5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	İ	į	į
	6-8			6.00-20.00			1.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26		1	6.00-20.00		1	1.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Cusino	0-2	 	 	6.00-20.00	 				   5	2	134
	2-8	0-10	1.35-1.65	6.00-20.00	0.09-0.12	0.0-2.9	.15	.17	İ	į	į
	8-10	0-10	1.30-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.17			
	10-17	0-5	1.30-1.65	6.00-20.00	0.05-0.11	0.0-2.9	1.15	.15			
	17-80	0-5	1.55-1.65	20.00-60.00	0.02-0.07	0.0-2.9	.10	.10			
226D:		 	 	 	 			 	 	1	 
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	İ	į	į
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	1.15	.15			
	8-16			6.00-20.00		1	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Cusino	0-2	 	 	6.00-20.00	 				   5	2	134
	2-8	0-10	1.35-1.65	6.00-20.00	0.09-0.12	0.0-2.9	.15	.17		i	i
	8-10	0-10	1.30-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.17	i	į	İ
	10-17	0-5	1.30-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	17-80	0-5	1.55-1.65	20.00-60.00	0.02-0.07	0.0-2.9	.10	.10			
226E:		 	 	 	 	! 		 	 	1	 
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	İ	į	į
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26			6.00-20.00			.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	1.15	 		
Cusino	0-2	 	 	6.00-20.00	 				   5	2	134
	2-8	0-10	1.35-1.65	6.00-20.00	0.09-0.12	0.0-2.9	.15	.17	i	İ	i
	8-10	0-10	1.30-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.17	İ	į	į
	10-17	0-5	1.30-1.65	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	17-80	0-5	1.55-1.65	20.00-60.00	0.02-0.07	0.0-2.9	.10	.10			
226F:		 	 	 	 	 		 	 		 
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6 - 8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16			6.00-20.00			.15	.15			
	16-26			6.00-20.00			.15	.15		ļ	!
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	 	1	
Cusino	0-2			6.00-20.00					5	2	134
İ	2-8	0-10	1.35-1.65	6.00-20.00	0.09-0.12	0.0-2.9	.15	.17	ĺ	Ì	ĺ
	8-10			6.00-20.00			.15	.17			
	10-17			6.00-20.00  20.00-60.00			1.15	1.15			
	17-80	U-5 	11.22-1.65	<u>~</u> 0.00-60.00	0.02-0.07 	0.0-2.9	.10	.10	 		
227A:		İ	İ	İ	İ	į	į	į	İ	İ	į
Halfaday	0-2			6.00-20.00					5	1	220
	2-9			6.00-20.00			.15	.15		1	
	9-10			6.00-20.00				1.15		1	
	10-35 35-80			6.00-20.00 6.00-20.00				1.15	l I	1	I
	22-00	0-2	1	1 3.00-20.00	0.01-0.07	0.0-2.9	.15	.15		1	1

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	   Clay	   Moist	Permea-	  Available	1		on fac		erodi-	
and soil name			bulk	bility	water	extensi-				bility	
		<u> </u>	density	(Ksat)	capacity	bility	K	Kf	T	group	Index
	In	Pct	g/cc	In/hr	In/in	Pct		l I		 	
232B:		! 	 	 	! 	İ		İ			i
Shelldrake	0-1	i	i	6.00-20.00	i	i	j	i	5	1	220
j	1-3			6.00-20.00					ĺ	İ	ĺ
	3 - 4		1.30-1.55		1		.15	.15			
	4-80	0-4	1.55-1.65	6.00-20.00	0.05-0.07		.15	.15		!	!
0225											
233B: Abbaye	0-2	 	 	0.60-2.00	 				   4	3	   86
imbuyo	2-4	1	1	0.60-2.00	1	1	.20	.24	-		
	4-13				0.13-0.18		.15	.17	i	İ	i
	13-25	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.24	.24	į	į	į
	25-32	8-15	1.30-1.70	0.60-2.00	0.09-0.17	0.0-2.9	.20	.24			
	32-80			0.00-0.20							
T.3.	0.0								   4		
Zeba	0-2 2-5			0.60-2.00	0.13-0.15		1.15	.24	42	5	56
	5-13				0.11-0.16		1.15	1 .	 	 	
	13-33		1.35-1.70		0.09-0.14	1	.20	.24		İ	i
	33-80		1	0.00-0.20					i	İ	i
j		j	j	j	į	Ì	İ	į	į	į	į
234A:											
Levasseur	0-1		1	20.00-60.00		1			2	8	0
	1-3		1	20.00-60.00	1		1				
	3-8 8-13			20.00-60.00		 	.02	1.10			
	13-80	0-2		0.00-0.20						 	
		! 	İ		İ	i	i	i	i	i	i
Burt	0-1	j	j	6.00-20.00	j	j	j	i	2	8	0
	1-5	0-8	0.90-1.50	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15			
	5-19		1.50-1.70		1	!	.15	.15			
	19-80			0.00-0.20					ļ		
235B:		l I	l I	l I	l I	l I	1	l I	 	 	
Sauxhead	0-1	 	 	2.00-6.00	 	 			2	8	0
	1-4	2-6	1	2.00-6.00	0.11-0.15	0.0-2.9	.20	.24	i -		i
	4-14	0-6	1.30-1.70	20.00-60.00	0.02-0.05	0.0-2.9	.05	.17	į	į	į
	14-17			0.20-0.60							
	17-80			0.00-0.20							
Decemb	0 1				[		1				
Burt	0-1 1-5	   0-8	  0 90-1 50	6.00-20.00	1	0.0-3.0	1.15		2	8	0
	5-19			6.00-20.00			1.15	1.15		 	
	19-80		1	0.00-0.20	1				i	i	i
		į	İ	j	į	į	į	į	į	į	į
236B:											
Waiska	0-1			20.00-60.00					5	3	86
	1-4			20.00-60.00			.15	.24			
	4-8 8-18			20.00-60.00			.05	1.10	 		
	8-18 18-80			20.00-60.00			.05	.10	 	 	
	10.00	0=5					.02				i
236D:		į	İ	İ	į	į	į	i	į	į	į
Waiska	0-1	j		20.00-60.00	i	j	j		5	3	86
	1-4			20.00-60.00			.15	.24			
	4-8			20.00-60.00			.05		ļ		ļ
	8-18			20.00-60.00			.05	.10			
	18-80	0-5	1.50-1.60	20.00-60.00	0.01-0.03	0.0-2.9	.02	.10	!	1	

Table 17.--Physical Properties of the Soils--Continued

	2-8 2-8 2-8 0-10 0-6 0-4 4-12 2-8 4-12 4-12 4-12 0-10 0-10	1.50-1.70    1.30-1.60  1.35-1.70  1.35-1.70  1.35-1.80 	0.60-2.00   0.60-2.00   0.60-2.00   2.00-6.00   2.00-6.00   2.00-6.00   20.00-60.00   0.60-2.00   0.60-2.00   0.60-2.00	0.06-0.09   0.02-0.04         0.12-0.24   0.12-0.24	0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9	K	Kf	T	bility   group	-
	2-8 2-8 2-8 0-10 0-6 0-4 4-12 2-8 4-12 4-12 4-12 4-12 0-10 0-10 0-10	g/cc    0.20-0.30 1.30-1.60 1.35-1.70 1.35-1.70 1.50-1.75 1.50-1.70      1.30-1.60 1.35-1.70 1.35-1.70 1.35-1.70 1.35-1.70 1.35-1.70	In/hr   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   2.00-6.00   2.00-6.00   2.00-6.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00	In/in    0.35-0.45  0.13-0.15  0.12-0.16  0.10-0.12  0.03-0.12    0.03-0.12  0.06-0.09  0.02-0.04      0.12-0.24  0.12-0.24  0.12-0.24  0.08-0.24	Pct		   .24   .24   .24   .24     .24   .02	     5         5     5	4	86
	2-8 2-8 2-8 0-10 0-6 0-4 4-12 2-8 4-12 4-12 4-12 4-12 0-10 0-10 0-10	0.20-0.30   1.30-1.60   1.35-1.70   1.35-1.70   1.55-1.80     1.50-1.75   1.50-1.70   1.35-1.70   1.35-1.70   1.35-1.70   1.35-1.70	0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   2.00-6.00   2.00-6.00   2.00-6.00   2.00-60.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00			.15   .15   .10   .02       .05   .10     .24   .24   .24	.24   .24   .24   .24   .24   .02   .24   .24   .24	           5	-             4	           86   
5   22   280   280   280   380	2-8 2-8 2-8 0-10 0-6 0-4 4-12 2-8 4-12 4-12 4-18  0-10 0-10	1.30-1.60 1.35-1.70 1.35-1.70 1.55-1.80  1.50-1.75 1.50-1.70 1.30-1.60 1.35-1.70 1.35-1.70 1.35-1.70 1.35-1.70	0.60-2.00   0.60-2.00   0.60-2.00   2.00-6.00   2.00-6.00   2.00-6.00   20.00-60.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00	0.13-0.15   0.12-0.16   0.10-0.12   0.03-0.12   0.35-0.45   0.06-0.09   0.02-0.04 	0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9	.15   .15   .10   .02       .05   .10     .24   .24   .24	.24   .24   .24   .24   .24   .02   .24   .24   .24	           5	-             4	         86   
5   22   280   280   280   380	2-8 2-8 2-8 0-10 0-6 0-4 4-12 2-8 4-12 4-12 4-18  0-10 0-10	1.30-1.60 1.35-1.70 1.35-1.70 1.55-1.80  1.50-1.75 1.50-1.70 1.30-1.60 1.35-1.70 1.35-1.70 1.35-1.70 1.35-1.70	0.60-2.00   0.60-2.00   0.60-2.00   2.00-6.00   2.00-6.00   2.00-6.00   20.00-60.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00	0.13-0.15   0.12-0.16   0.10-0.12   0.03-0.12   0.35-0.45   0.06-0.09   0.02-0.04 	0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9	.15   .15   .10   .02       .05   .10     .24   .24   .24	.24   .24   .24   .24   .24   .02   .24   .24   .24	           5	-             4	         86   
20   22   28   28   28   28   28   28	2-8 2-8 0-10  0-6 0-4 4-12 2-8 4-12 4-12 4-18  0-10 0-10 0-10	1.35-1.70 1.35-1.70 1.55-1.80  1.50-1.75 1.50-1.70 1.30-1.60 1.35-1.70 1.35-1.70 1.35-1.70 1.35-1.70	0.60-2.00   0.60-2.00   2.00-6.00   2.00-6.00   2.00-6.00   20.00-60.00 	0.12-0.16 0.10-0.12 0.03-0.12   0.35-0.45   0.06-0.09   0.02-0.04     0.12-0.24   0.08-0.24   0.08-0.24   0.09-0.19	0.0-2.9   0.0-2.9   0.0-2.9     0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9	.15   .10   .02     .05   .10     .24   .24   .24	.24   .24   .24     .24   .02     .24   .24		       	 
89   28   28   38   38   38   38   38   38	2-8 0-10  0-6 0-4 4-12 2-8 4-12 4-12 4-18  0-10 0-10	1.35-1.70 1.55-1.80   1.50-1.75 1.50-1.70   1.30-1.60 1.35-1.70 1.35-1.70 1.45-1.80    1.35-1.65	0.60-2.00   2.00-6.00   2.00-6.00   2.00-6.00   20.00-60.00 	0.10-0.12  0.03-0.12  0.35-0.45  0.06-0.09  0.02-0.04    0.12-0.24  0.12-0.24  0.08-0.24  0.08-0.24  0.09-0.19	0.0-2.9   0.0-2.9     0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9	.10   .02       .05   .10     .24   .24   .24	.24   .24     .24   .02   .24   .24		       	 
C	0-10  0-6 0-4 4-12 2-8 4-12 4-12 4-18  0-10 0-10 0-10	1.55-1.80     1.50-1.75 1.50-1.70   1.30-1.60   1.35-1.70 1.35-1.70 1.45-1.80    1.35-1.65	2.00-6.00   2.00-6.00   2.00-6.00   20.00-60.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00	0.03-0.12   0.35-0.45   0.06-0.09   0.02-0.04 	0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9	.02       .05   .10     .24   .24   .24	.24     .24   .02     .24   .24		       	 
1.1   C   C   C   C   C   C   C   C   C	0-6 0-4 4-12 2-8 4-12 4-12 4-18  0-10 0-10	1.50-1.75 1.50-1.70   1.30-1.60 1.35-1.70 1.35-1.70 1.35-1.70 1.45-1.80	2.00-6.00  20.00-60.00     0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   0.20-2.00	0.06-0.09  0.02-0.04    0.12-0.24  0.12-0.24  0.08-0.24  0.08-0.24	0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9	.05   .10       .24   .24   .24	.24   .02       .24   .24		       	 
1.1   C   C   C   C   C   C   C   C   C	0-6 0-4 4-12 2-8 4-12 4-12 4-18  0-10 0-10	1.50-1.75 1.50-1.70   1.30-1.60 1.35-1.70 1.35-1.70 1.35-1.70 1.45-1.80	2.00-6.00  20.00-60.00     0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   0.60-2.00   0.20-2.00	0.06-0.09  0.02-0.04    0.12-0.24  0.12-0.24  0.08-0.24  0.08-0.24	0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9	.05   .10       .24   .24   .24	.24   .02       .24   .24		       	 
80   C   C   C   C   C   C   C   C   C	0-4 4-12 2-8 4-12 4-12 4-18  0-10 0-10	1.50-1.70   1.30-1.60 1.35-1.70 1.35-1.70 1.45-1.80    1.35-1.65	20.00-60.00 	0.02-0.04      0.12-0.24  0.08-0.24  0.08-0.24  0.09-0.19	0.0-2.9     0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9   0.0-2.9	.10     .24   .24   .24   .24	.02     .24   .24   .24	       4 	         3	       86
9   2 11   4 27   4 31   4 30   -   0 1   0 3   0	2-8 4-12 4-12 4-18  0-10 0-10 0-10	1.35-1.70  1.35-1.70  1.35-1.70  1.45-1.80   	0.60-2.00 0.60-2.00 0.60-2.00 0.60-2.00 0.20-2.00	0.12-0.24  0.08-0.24  0.08-0.24  0.09-0.19	0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9	.24 .24	.24	     <b>4</b> 	     3 	     86 
9   2 11   4 27   4 31   4 30   -   0 1   0 3   0	2-8 4-12 4-12 4-18  0-10 0-10 0-10	1.35-1.70  1.35-1.70  1.35-1.70  1.45-1.80   	0.60-2.00 0.60-2.00 0.60-2.00 0.60-2.00 0.20-2.00	0.12-0.24  0.08-0.24  0.08-0.24  0.09-0.19	0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9	.24 .24	.24	   <b>4</b> 	   3 	   86 
9   2 11   4 27   4 31   4 30   -   0 1   0 3   0	2-8 4-12 4-12 4-18  0-10 0-10 0-10	1.35-1.70  1.35-1.70  1.35-1.70  1.45-1.80   	0.60-2.00 0.60-2.00 0.60-2.00 0.60-2.00 0.20-2.00	0.12-0.24  0.08-0.24  0.08-0.24  0.09-0.19	0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9	.24 .24	.24	-   		
11   4 27   4 31   4 30   -     0 1   0 3   0	4-12 4-12 4-18  0-10 0-10 0-10	1.35-1.70  1.35-1.70  1.45-1.80      1.35-1.65	0.60-2.00 0.60-2.00 0.60-2.00 0.20-2.00	0.08-0.24 0.08-0.24 0.09-0.19	0.0-2.9	.24		İ		1
31   4 30   -     0   0   0   0	4-18  0-10 0-10 0-10	1.45-1.80      1.35-1.65	0.60-2.00	0.09-0.19	0.0-2.9	1	24			
30   -    - 	0-10 0-10 0-10	    1.35-1.65	0.20-2.00	1	1	. 28	. 44	į	į	į
0     0   0   0	0-10 0-10 0-10	    1.35-1.65				.20	.37	į	İ	İ
'   0 3   0 L1   0	0-10 0-10		6.00-20.00							
1   0	0-10	1.35-1.65		0.05-0.12	0.0-2.9	   .17	   .17	   4	   2	134
1 0				1	1	.17	.17	İ	i	i
	0 10	1.30-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.17	.17	İ	i	i
30   -	0-10	1.30-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.17	.17	į	į	į
			0.00-0.06							
l I		 		 	 		 	 	 	
.9   -		0.20-0.45	0.20-6.00	0.35-0.45	i	i	j	4	8	0
4   -			0.20-0.60		i	j	j	į	į	į
30   -			0.00-0.20							
 5   -		0.30-0.40	6.00-20.00	0.35-0.45	 		 	2	2	134
,   2	2-8	1.35-1.50	6.00-20.00	0.10-0.12	i	.17	.17	İ	į	İ
18 0	0-5	1.50-1.70	6.00-20.00	0.05-0.07		.15	.15	į	İ	İ
29   -			0.20-0.60	0.01-0.02						
30   -			0.00-0.20							
.   0	0-10	  1.35-1.65	6.00-20.00	0.05-0.12	0.0-2.9	.17	1 .17	4	2	134
, j c	0-10	1.35-1.65	6.00-20.00	0.05-0.12	0.0-2.9	.17	.17	į	į	į
3   0	0-10	1.30-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.17	.17			
11   0	0-10	1.30-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.17	.17			
30   -		 	0.00-0.06							
 !6   -		  0 20-0 30	0.20-6.00	  0 35-0 45	 			   5	2	134
			0.60-2.00			.24	.24		-	
			0.20-6.00			1		5	3	86
				1	1			 	 	
				1	1	.20	.24			
1	0-10	  1.30-1.55	6.00-20.00	0.06-0.09	0.0-2-9	.15	1 .15	5	1	220
.   .   n						1.15	.15		i -	
				1	1		1.15	i	i	i
5   0						.15	.15	İ	i	i
5   C						.15	.15			
5   0 3   0 16   0		1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	11   16   30    .60-2.00   0.07-0.15   0.0-2.9   .24   .24   .66   6-35   1.50-1.85   0.60-2.00   0.10-0.18   0.0-2.9   .20   .24   .24   .26   6-12   1.70-1.80   0.60-2.00   0.09-0.13   0.0-2.9   .20   .24   .24   .24   .25	11   2-10   1.10-1.60   0.60-2.00   0.07-0.15   0.0-2.9   .24   .24   .66   6-35   1.50-1.85   0.60-2.00   0.10-0.18   0.0-2.9   .20   .24   .80   6-12   1.70-1.80   0.60-2.00   0.09-0.13   0.0-2.9   .20   .24   .80	11   2-10   1.10-1.60   0.60-2.00   0.07-0.15   0.0-2.9   .24   .24							

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	   Depth 	   Clay 	   Moist   bulk	Permea- bility	  Available   water	   Linear  extensi-		on fac		erodi-	
		i	density	(Ksat)	capacity	bility	K	Kf	т	group	
	In	Pct	g/cc	In/hr	In/in	Pct	i i	İ	İ		İ
		[									ļ
242D: Kalkaska	   0-2	   0-10	  1.30-1.55	6.00-20.00	  n_ns_n_ng	0.0-2.9	1.15	   .15	   5	   1	   220
Rainaska	2-6		1.30-1.55		1	1	1.15	1.15	]	-	220
	6-8		1.30-1.55				.15	.15	İ		
	8-16	0-10	1.40-1.65	6.00-20.00			.15	.15	İ	i	İ
j	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	ĺ		ĺ
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
242F:		 	 		 	 	1	 	 		l I
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
j	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	į	į	į
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16			6.00-20.00				.15			
	16-26		1.55-1.65				.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	 		
243:		l I	 		! 	 		 	 		 
Markey	0-3	j	0.10-0.20	0.60-6.00	0.45-0.55	j	j	j	4	2	134
j	3-20		0.20-0.30	0.20-6.00	0.35-0.45				ĺ		ĺ
	20-80	0-5	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
245B:			 		 			 	 		
Trout Bay	   0-19	 	  0.20-0.45	0.20-6.00	  0.35-0.45	 		 	   4	8	l I 0
11000 207	19-34			0.20-0.60		i			i -		
j	34-80	j	i i	0.00-0.20	i	i	j		İ	į	į
							-		_		
Lupton	0-4   4-80		0.05-0.15   0.20-0.30	6.00-20.00 0.20-6.00	1	 		 	5	8	0
	4-60 	 	0.20-0.30   	0.20-6.00	0.33-0.43				 		 
Gongeau	0-5	i	0.30-0.40	6.00-20.00	0.35-0.45			i	2	2	134
	5-7	2-8	1.35-1.50	6.00-20.00	0.10-0.12	i	.17	.17	İ	İ	į
	7-18	0-5	1.50-1.70	6.00-20.00	0.05-0.07		.15	.15			
	18-29			0.20-0.60	!						
	29-80			0.00-0.20							
246B:		 	 		 	 		 	 		 
Garlic	0-2	i		6.00-20.00					5	1	220
	2-9	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	İ	İ	į
	9-11		1.30-1.60		0.06-0.09	0.0-2.9	.15	.15			
	11-20		1.30-1.60				.15	.15			
	20-29			6.00-20.00	1	1	.15	.15			
	29-80	0-10	1.55-1.75	6.00-20.00	0.06-0.09 	0.0-2.9	.15	1.15	 	 	 
246D:			 		! 	 		İ		İ	 
Garlic	0-2	i		6.00-20.00					5	1	220
	2-9	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15	İ	İ	į
	9-11	0-10	1.30-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-20			6.00-20.00	1	1	.15	.15			
	20-29			6.00-20.00			.15	.15			
	29-80	U-10	1.55-1.75	6.00-20.00	U.U6-0.09	0.0-2.9	.15	1.15		 	l I
246E:		i İ	 		[ 	! 		[			 
Garlic	0-2	i		6.00-20.00				i	5	1	220
	2-9	0-10	1.30-1.55			0.0-2.9	.15	.15	İ	İ	į
j	9-11			6.00-20.00			.15	.15	İ	İ	İ
	11-20			6.00-20.00			.15	.15			
	20-29			6.00-20.00			.15	.15			ļ
	29-80	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
		1			[	[					I

Table 17.--Physical Properties of the Soils--Continued

Map symbol	   Depth	   Clay	   Moist	Permea-	  Available	!	Erosi	on fac	cors	1	Wind  erodi-
and soil name			bulk	bility	water	extensi-					
	   Tm	   Pct	density g/cc	(Ksat)	capacity In/in	bility   Pct	K	Kf	T	group	Index
	In 	PCL 	<b>g</b> /cc	111/111	111/111	PCL			 	 	
248B:		i		i	ì	i	i	i	İ	i	İ
Escanaba	0-1	j	0.10-0.20	2.00-6.00	0.45-0.55	j	j	j	5	2	134
	1-3	0-6	1.30-1.70	2.00-6.00	0.06-0.12	0.0-2.9	.15	.17	İ	į	İ
	3-6	0-6	1.30-1.65	2.00-6.00	0.06-0.12	0.0-2.9	.15	.17			
	6-26	0-6	1.30-1.65		0.05-0.11	0.0-2.9	.15	.17			
	26-35		1.30-1.70		0.08-0.17		.24	.28			
	35-42		1.35-1.70		0.11-0.17		.24	.28		!	ļ
	42-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
Qll-	0 1			0 60 0 00	45 0 55						
Greylock	0-1   1-6		0.10-0.20 1.30-1.60		0.45-0.55		.20	.24	5	3	86
	1-6		1.30-1.65		0.12-0.18		.20	.24	 	 	l I
	0-7   7-9		1.35-1.70		0.11-0.17		.20	.24	 	 	
	9-19		1.35-1.70		0.11-0.17	1	.20	.24	 	 	
	19-26		1.50-1.75		0.08-0.17		.24	.28	 	İ	
	26-34		1.50-1.75		0.08-0.17		.24	.28	i	i	i
	34-80		1.60-1.80		0.11-0.16		.17	.28	İ	i	İ
	İ	į	İ	İ	İ	İ	į	İ	İ	i	İ
248D:											
Escanaba	0-1		0.10-0.20	2.00-6.00	0.45-0.55				5	2	134
	1-3	0-6	1.30-1.70	2.00-6.00	0.06-0.12	0.0-2.9	.15	.17			
	3-6	0-6	1.30-1.65		0.06-0.12	0.0-2.9	.15	.17			
	6-26		1.30-1.65		0.05-0.11		.15	.17			
	26-35		1.30-1.70		0.08-0.17		.24	.28			ļ
	35-42		1.35-1.70		0.11-0.17	1	.24	.28			
	42-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
Greylock	   0-1	 	  0.10-0.20	0.60-2.00	  0.45-0.55	 			   5	   3	   86
Gleylock	1-6		1.30-1.60		0.12-0.18		.20	.24	]	3	1 00
	6-7		1.30-1.65		0.09-0.18	1	.20	.24	 	l I	l I
	7-9		1.35-1.70		0.11-0.17		.20	.24	İ		i
	9-19		1.35-1.70		0.11-0.17		.20	.24	İ	i	İ
	19-26	4-10	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28	İ	i	İ
	26-34	6-15	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28	ĺ	İ	ĺ
	34-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
			[								
248E:		!				!	!	ļ			
Escanaba	0-1		0.10-0.20		0.45-0.55				5	2	134
	1-3		1.30-1.70		0.06-0.12	1	1.15	1.17			
	3-6   6-26		1.30-1.65 1.30-1.65		0.06-0.12		.15	1.17			
	26-35				0.03-0.11		.24	.28	 	 	 
	35-42				0.11-0.17		.24	.28	 	 	
	42-80			0.60-2.00				.28	 	İ	İ
		i					i		i	i	İ
Greylock	0-1	i	0.10-0.20	0.60-2.00	0.45-0.55		j		5	3	86
	1-6	2-8	1.30-1.60	0.60-2.00	0.12-0.18	0.0-2.9	.20	.24	İ	į	İ
	6-7	2-8	1.30-1.65	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	7 - 9	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	9-19			0.60-2.00				.24			
	19-26			0.60-2.00				.28			ļ
	26-34			0.60-2.00				.28			
	34-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
249B:	 	 	 	I I	1	1	1	1	 	1	1
249B: Sauxhead	   0-1	 		2.00-6.00	 	 			   2	   5	   86
Dauxilead	0-1			2.00-6.00		1	.20	.24	<b>4</b> 	3	00
	1-4			20.00-60.00			1				
	14-17			0.20-0.60						i	İ
	17-80			0.00-0.20					i	i	i
		i	i	i	i	i	i	i	i	i	i

Table 17.--Physical Properties of the Soils--Continued

Map symbol   and soil name	Depth	   Clay 	   Moist   bulk	Permea- bility	Available water	Linear extensi-	Erosi	on fact		Wind  erodi-  bility	
and soll name		l I	density	(Ksat)	capacity	bility	K	Kf		group	
	In	Pct	g/cc	In/hr	In/in	Pct	<del> </del>		-		
249B:		 			 	 			 	 	
Skandia	0 - 4	l I	  0 10-0 20	0.60-6.00	0.45-0.55	 			   4	l   5	   56
Drandia	4-26		0.20-0.30		0.35-0.45	1			<del>*</del> 	3	30
	26-31			0.20-0.60		l			 	l I	 
	31-80			0.00-0.20							
250B:		 	 		 	 		 	 	 	 
Chocolay	0-2			0.60-2.00		i			4	3	86
	2-3	5-10	1.30-1.60	0.60-2.00	0.06-0.12	0.0-2.9	.10	.24	i	İ	i
i	3-8			0.60-2.00			.05	.24	i	İ	i
i	8-14			0.60-2.00			.05	.24		İ	i
	14-27			0.60-2.00			.05	.24	i	İ	i
	27-80			0.00-0.20					į		į
Jacobsville	0 - 5	 	  0.20-0.30	0.20-6.00	  0.35-0.45	 			   4	   8	   0
	5-9			0.60-2.00			.20	.24	- 	İ	i -
	9-23	7-15	1.50-1.85	0.60-2.00	0.10-0.17	0.0-2.9	.20	.24	i	İ	i
	23-36			0.60-2.00			.20	.24	i	İ	i
	36-80			0.00-0.20					į		į
251B:		 	 		 	 		 	 	 	 
Greylock	0-1		0.10-0.20	0.60-2.00	0.45-0.55	i			5	3	86
i	1-6	2-8	1.30-1.60	0.60-2.00	0.12-0.18	0.0-2.9	.20	.24	i	İ	i
i	6-7			0.60-2.00			.20	.24	i	İ	i
į	7 - 9	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24	i	İ	i
į	9-19	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24	i	İ	i
į	19-26	4-10	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28	İ	j	į
j	26-34	6-15	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28	ĺ	ĺ	ĺ
	34-80	6-14	1.60-1.80	0.60-2.00	0.11-0.16	0.0-2.9	.17	.28			
251D:		 	 			! 			 	 	
Greylock	0-1		0.10-0.20	0.60-2.00	0.45-0.55				5	3	86
	1-6	2-8	1.30-1.60	0.60-2.00	0.12-0.18	0.0-2.9	.20	.24			
	6 - 7	2-8	1.30-1.65	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	7 - 9	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	9-19	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.20	.24			
	19-26	4-10	1.50-1.75	0.60-2.00	0.08-0.17	0.0-2.9	.24	.28			
	26-34 34-80			0.60-2.00 0.60-2.00			.24	.28	 	[ 	
	34-00	0-14	1.00-1.00	0.00-2.00		0.0-2.9	.1/	.20		 	
252A:     Finch	0-1	 	 	6.00-20.00	 				   2	   1	   220
FINCH	1-11	1		6.00-20.00			.15	.15	4	1	220
	11-42			0.60-6.00		!	.15	.15	 	l I	l I
	42-80			6.00-20.00	•		.15	.15		 	
Kinross	0-3		0 10 0 35	6.00-20.00	0 35 0 45	 		 	   3	   2	   134
KINIOSS	3-14			6.00-20.00		1	.15	.15	3	<b>4</b> 	134
	14-22			6.00-20.00			1.15	.15	 	l I	l I
	22-35			6.00-20.00			.15	.15	 	 	l I
	35-80			6.00-20.00			.15	.15			
 254C:		 				 			 	 	 
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	1 .15	.15	   5	   1	220
	2-6			6.00-20.00			1.15	1.15	i	i -	
i	6-8			6.00-20.00			1.15	1.15		İ	İ
i	8-16			6.00-20.00			1.15	1.15		İ	İ
	16-26			6.00-20.00			1.15	1.15	i	<u> </u>	İ
i	26-80			6.00-20.00		1	1.15	.15	i	i İ	i
i		i	İ		i	i	i	i	i	i	i

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	   Clay	   Moist   bulk	Permea- bility	  Available   water	   Linear  extensi-	Erosi	on fac	tors	1	Wind  erodi-  bility
and soll name		l I	density	(Ksat)	capacity	bility	K	Kf	 	group	
	In	   Pct	g/cc	In/hr	In/in	Pct			-	group	Index
		İ	į į		į	į	İ	İ	İ	İ	İ
254C: Blue Lake	0-2	 	 	2.00-6.00	 				   5	   2	   134
blue Lake	2-7	1	  1.35-1.65		0.09-0.12	0.0-3.0	1.15	1.17	5	4	1 134
	7-9		1.30-1.70		0.09-0.12		.15	1.17	 	 	 
	9-27		1.30-1.70		0.06-0.11		1.15	1 .17	 	 	I I
	27-80		1.35-1.65		0.07-0.10		1.15	.17	İ		
		İ	j i		į	į	į	į	į	į	į
254E:											
Kalkaska	0-2 2-6		1.30-1.55   1.30-1.55			1	1.15	1.15	5	1	220
	6-8		1.30-1.55   1.30-1.55				1.15	1.15	 	 	 
	8-16		1.40-1.65				1.15	1.15	 	 	I I
	16-26		1.55-1.65				1.15	.15	 	 	i i
	26-80		1.55-1.65				1.15	.15	İ		
İ		İ	j i		Ì	İ	į	į	İ	İ	İ
Blue Lake	0-2			2.00-6.00					5	2	134
	2-7		1.35-1.65		0.09-0.12		.15	.17			
	7-9		1.30-1.70		0.06-0.11		1.15	.17			
	9-27 27-80		1.30-1.70   1.35-1.65		0.06-0.11		1.15	1.17	 	 	 
	27-00	0-10	1.55-1.65	2.00-0.00		0.0-3.0	.13	•=/	 	i i	 
254F:		İ			İ	İ	ì	İ	İ	İ	İ
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	İ	į	į
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	į	İ	ĺ
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Blue Lake	0-2	 	 	2.00-6.00					   5	   2	134
2140 24.10	2-7	1	1.35-1.65		0.09-0.12	1	.15	.17		-	-0-
	7 - 9		1.30-1.70		0.06-0.11		.15	.17	i	i	İ
	9-27	0-8	1.30-1.70		0.06-0.11		.15	.17	İ	i	İ
	27-80	0-10	1.35-1.65	2.00-6.00	0.07-0.10	0.0-3.0	.15	.17	į	İ	İ
						ļ	ļ	ļ			
255D: Wallace	0-2	 	  0.10-0.20	0.60-6.00	45 0 55	 			   5	   1	   220
wallace	2-10	1	1.35-1.45			1	1.15	1.15	5	+	220
	10-11		1.45-1.60				1.15	.15	 	 	I I
	11-21		1.75-2.05				1.15	.15	 	i	İ
	21-26		1.75-2.05				.15	.15	İ	İ	
	26-59		1.45-1.60				.15	.15	İ	i	İ
j	59-80	0-5	1.45-1.60	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15	į	į	į
						ļ	ļ	ļ			
256B: Whitewash	0-3	 		0 60 6 00					   5	   1	   220
wnitewasn	3-7			0.60-6.00 6.00-20.00			1	1.15	5	+	220
	7-9			0.60-6.00				.24	 	 	I I
	9-80			6.00-20.00			.15	.15	İ		
		į	i i		į	į	į	į	į	į	į
266A:											
Spot	0-2			0.20-6.00					2	7	38
	2-8			6.00-20.00		1	.15	.15		!	
	8-10			0.60-6.00			.15	.15			
	10-18			6.00-20.00			.15	.15			
	18-80	U-10	1.50-1.70   	6.00-20.00	0.05-0.07		.15	.15	 	 	l I
Finch	0-1	 	 	6.00-20.00					2	1	220
-	1-11	1	1.20-1.57			1	.15	.15	i	į .	i
	11-42			0.60-6.00			.15	.15	į	į	į
j	42-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
			ı i		1	1	I				I

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	   Clay	   Moist	Permea-	  Available	Linear	Erosi	on fact	ors	Wind  erodi-	Wind  erodi
and soil name			bulk	bility	water	extensi-				bility	
			density	(Ksat)	capacity	bility	K	Kf	Т	group	index
	In	Pct	g/cc	In/hr	In/in	Pct					
267A:		! 			 	 				İ	
Finch	0-1	i	i i	6.00-20.00	i			i i	2	1	220
	1-11			6.00-20.00			.15	.15			
	11-42			0.60-6.00			.15	.15			
	42-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-3.0	.15	.15			l I
268C:		! 			 	 				İ	
Munising	0-1			0.60-2.00					4	2	134
	1-3			0.60-2.00	1		.20	.24			
	3 - 6			0.60-2.00							
	6-23			0.60-2.00				.24		!	
	23-38			0.00-0.06							
				0.00-0.06				.24			
	50-63 63-80			0.60-2.00 0.60-2.00			1.15	.24		l I	l I
		0 20								ĺ	
Frohling				0.60-2.00					5	3	86
	2-5			0.60-2.00	1		.20	.24			
	5-24			0.60-2.00				.24			
	24-73 73-80			0.00-0.06 0.60-2.00			.20	.24		l I	l I
	73-80	6-12	1.00-1.00	0.00-2.00		0.0-2.9	.13	•24		İ	
Cookson	0-3			6.00-20.00					4	5	56
	3 - 7	0-18	1.30-1.60	0.60-6.00	0.14-0.24	0.0-2.9	.20	.24			
	7-11			0.60-6.00							
	11-16			0.60-6.00						!	
	16-21			0.60-6.00						!	
	21-31	1		0.60-2.00							
	31-36 36-80	0-25		0.60-2.00 0.00-0.60		0.0-2.9	.24	.24		l I	 
į		į			į		į	į į		į	į
269E:									_		
Frohling				0.60-2.00					5	3	86
	2-5 5-24			0.60-2.00 0.60-2.00			.20	.24		l I	l I
	24-73			0.00-0.06			.20	.24		 	
	73-80			0.60-2.00			.15	.24		İ	
İ							İ	<u> </u>		į	
Garlic	0-2			6.00-20.00	1				5	1	220
	2-9			6.00-20.00				.15			
	9-11			6.00-20.00				.15			
	11-20 20-29			6.00-20.00 6.00-20.00	1		.15	.15			
	29-80			6.00-20.00			.15	.15		l I	 
	27 00	0 20								ĺ	
Cookson	0 - 3	1		6.00-20.00					4	3	86
	3 - 7	0-18	1.30-1.60	0.60-6.00	0.14-0.24	0.0-2.9	.20	.24			
	7-11			0.60-6.00			.28	.28		!	
	11-16			0.60-6.00			.43	.43			
	16-21			0.60-6.00			.24	.24			
	21-31 31-36			0.60-2.00 0.60-2.00			.32	.32			
	36-80	0-25		0.00-0.60		0.0-2.9				l I	 
İ		İ			İ		į	i i		İ	į
272C:	0 1			0.60.0.00					4		
Munising	0-1			0.60-2.00				1 1	4	2	134
	1-3 3-6			0.60-2.00 0.60-2.00			.20	.24		I I	I I
	6-23			0.60-2.00			.20	.24		 	
	23-38			0.00-0.06			1.15	.24		Ĭ	İ
							.20	.24		1	1
	38-50	5-12	1.80-1.90	0.00-0.06	0.02-0.04	0.0-3.0	. 40	.24			
	38-50 50-63			0.60-2.00			1.15	24			

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	Clay	   Moist	Permea-	Available	1	Erosi	on fac	tors	erodi-	Wind  erodi-
and soil name			bulk	bility	water	extensi-				bility	
			density	(Ksat)	capacity	bility	K	Kf	Т	group	index
	In	Pct	g/cc	In/hr	In/in	Pct					
272C:		l I	 		 			l I	 	l i	
Yalmer	0-1	 	 	6.00-20.00	 				4	2	134
	1-2	0-8	1.35-1.65			0.0-2.9	.17	.17	-	i -	
	2-5	0-8	1.35-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15	İ	i	i
	5-16	0-8	1.30-1.65	6.00-20.00	0.06-0.12	0.0-2.9	.15	.17	į	į	į
	16-28	0-8	1.30-1.65	6.00-20.00	0.06-0.12	0.0-2.9	1.10	.17			
	28-36		1.80-1.90			1	1.15	.17			
	36-62		1.80-1.90			1	.20	.24			!
	62-80	8-15	1.60-1.85	0.60-2.00	0.11-0.14	0.0-2.9	.15	.24			
Frohling	   0-2	 	  0.20-0.30	0.60-2.00	  0.35_0.45				   5	3	   86
Froming	2-5		1.30-1.65			1	.20	.24	3	3	00
	5-24		1.35-1.70			1	.20	.24	 	l I	
	24-73		1.80-2.10			1	.20	.24	İ	i	i
	73-80	8-12	1.60-1.80	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24	İ	i	i
		ĺ	į į		ĺ	İ	İ	Ì	ĺ	İ	ĺ
275B:											
Munising	0-1		1	0.60-2.00					4	2	134
	1-3		1.30-1.60				.20	.24			!
	3-6		1.35-1.60			1	.20	.24			
	6-23 23-38		1.35-1.60   1.80-1.90	0.60-2.00 0.00-0.06		1	.20	.24			
	38-50		1.80-1.90			1	.20	.24	 	1	 
	50-63		1.60-1.80		0.11-0.14	1	1.15	.24	 		
	63-80		1.60-1.85		0.11-0.14		1.15	.24	İ		i
		j	j i		İ	İ	i	į	į	i	i
Cookson	0-3		0.05-0.15	6.00-20.00	0.55-0.65				4	5	56
	3-7	0-18	1.30-1.60	0.60-6.00	0.14-0.24	0.0-2.9	.20	.24			
	7-11		1.35-1.70			1	.28	.28			
	11-16		1.35-1.70			1	.43	.43			
	16-21			0.60-6.00		1	.24	.24			
	21-31   31-36		1.35-1.71   1.60-1.80			1	.32	.32	 		
	36-80	0-25		0.00-0.60		0.0-2.9	.24		 	1	 
	30-00	 	 		 				 	İ	
281E:		İ	i		İ	İ	i	İ	i	İ	i
Mongo	0-1	i	j j	6.00-20.00	0.55-0.65	j		j	5	4	86
	1-6	0-10	1.25-1.60	0.01-0.06	0.22-0.24	0.0-3.0	.37	.37			
	6-22		1.35-1.55		0.18-0.22	0.0-6.0	.43	.43			
	22-38		1.35-1.55			1	.32	.32			
	38-80	5-40	1.50-1.75	0.01-0.06	0.20-0.22	0.0-6.0	.43	.43			
282B:		 			l I	I I			 		
Furlong	   0-1	 	 	6.00-20.00	 				   4	1	220
ruriong	1-2			6.00-20.00			.15	.15	*	-	220
	2-5			6.00-20.00			1.15	.15	İ	i	i
	5-7			6.00-20.00				.15	İ	İ	i
	7-19	0-10	1.30-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15	İ	İ	İ
	19-22	0-5	1.55-1.75	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15			
	22-80			0.06-0.60							
							-	ļ			
Shingleton	0-1		1.35-1.65			1	.17	.17	4	2	134
	1-7			6.00-20.00			.17	.17			
	7-8		1.30-1.70			1	1.17	17	 	1	1
	8-11   11-80	0-10	1.30-1.70	6.00-20.00 0.00-0.06	0.05-0.11 	0.0-2.9	.1/	.17	l I	1	1
	1 11 00		i I	3.00-0.00	 					1	1

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	   Depth 	   Clay 	   Moist     bulk	Permea- bility	  Available   water	Linear		on fac	 	erodi-	
and soll name		 	density	(Ksat)	capacity	bility	K	   Kf	   Tr	group	
	In	Pct	g/cc	In/hr	In/in	Pct	"		<u>  -</u>	<u>  group</u> 	
		ĺ			į				ĺ	İ	ĺ
282D: Furlong	   0-1	 	 	0.60-6.00	 			 	   4	   1	   220
rullong	1-2	1		6.00-20.00	1	1	.15	.15	<del>"</del> 	-	220
	2-5		1.35-1.65				.15	.15	 	İ	 
	5-7		1.35-1.65				.15	.15	<u> </u>	İ	İ
	7-19	0-10	1.30-1.70				.15	.15	İ	i	İ
	19-22	0-5	1.55-1.75	6.00-20.00	0.05-0.11	0.0-2.9	.15	.15	İ	İ	į
	22-80			0.06-0.60							
Shingleton	   0-1	0-10	  1.35-1.65	6.00-20.00	  0.05-0.12	0.0-2.9		   .17	   4	2	   134
<b>3</b>	1-7			6.00-20.00		1	.17	.17	İ	İ	İ
	7-8		1.30-1.70				.17	.17	İ	İ	İ
	8-11	0-10	1.30-1.70	6.00-20.00	0.05-0.11	0.0-2.9	.17	.17	İ	İ	į
	11-80			0.00-0.06					ĺ	İ	ĺ
284B:		 	 		 	 		 	 		 
Steuben	0-2	i	i i	0.60-2.00					3	3	86
	2-8	4-8	1.30-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.24	.24	İ	İ	į
j	8-16	6-14	1.35-1.70	0.60-2.00	0.14-0.16	0.0-2.9	.24	.24	ĺ	İ	ĺ
	16-21	6-14	1.35-1.70	0.60-2.00	0.14-0.16	0.0-2.9	.24	.24			
	21-40		1.80-1.90		0.02-0.04		.17	.24			
	40-45		1.50-1.65		0.05-0.10		.15	.15			
	45-80	0-2	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15	 		
Blue Lake	0-2		 	2.00-6.00					5	2	134
	2-7	0-8	1.35-1.65	2.00-6.00	0.09-0.12	0.0-3.0	.15	.17	ĺ	İ	ĺ
	7-9	0-8	1.30-1.70	2.00-6.00	0.06-0.11	0.0-3.0	.15	.17			
	9-27	0-8	1.30-1.70	2.00-6.00	0.06-0.11	0.0-3.0	.15	.17			
	27-80	0-10	1.35-1.65	2.00-6.00	0.07-0.10	0.0-3.0	.15	.17			
Kalkaska	0-2	0-10	  1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	1.15	   5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	İ	İ	į
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	ĺ	İ	ĺ
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
284D:			 						 		
Steuben	0-2			0.60-2.00					3	3	86
	2-8		1.30-1.60		0.14-0.18		.24	.24			
	8-16		1.35-1.70		0.14-0.16		.24	.24			
	16-21		1.35-1.70		0.14-0.16		.24	.24			
	21-40		:		0.02-0.04	1	.17	.24			
	40-45   45-80			2.00-6.00 6.00-20.00			1.15	.15	 	 	 
	İ	İ	j j		į	İ	İ	į	İ	İ	İ
Blue Lake	0-2			2.00-6.00					5	2	134
	2-7			2.00-6.00			.15	.17			
	7-9			2.00-6.00			1.15	1.17			
	9-27 27-80			2.00-6.00			1.15	.17   .17	 		 
		İ	į į		Ì	į	į	į	į _	į .	
Kalkaska	0-2			6.00-20.00		1	.15	.15	5	1	220
	2-6			6.00-20.00			1.15	1.15	 	1	l I
	6-8   8-16			6.00-20.00 6.00-20.00			1.15	.15	l I	 	I I
	8-16   16-26			6.00-20.00			.15	.15	I I		I I
	26-80			6.00-20.00			1.15	1.15	! 	İ	İ
		0							<u>'</u>	i	İ

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	   Clay	   Moist	   Permea-	  Available	!		on fac		erodi-	
and soil name	l I	 	bulk	bility	water	extensi-	K	   Kf		bility  group	
	   In	Pct	density g/cc	(Ksat)	capacity   In/in	bility   Pct	K	KI	T 	group	index
		į				į	į	į	į	į	į
284E: Steuben	   0-2	 	 	   0.60-2.00	 	 			   3	   3	   86
b ceuben	2-8	1	1.30-1.60	1	ı	0.0-2.9	.24	.24	]	1	00
	8-16		1.35-1.70	1	0.14-0.16	1	.24	.24	i	İ	i
	16-21	6-14	1.35-1.70	0.60-2.00	0.14-0.16	0.0-2.9	.24	.24	į	į	į
	21-40	5-12	1.80-1.90	0.00-0.06	0.02-0.04	0.0-2.9	.17	.24			
	40-45		1.50-1.65			1	.15	.15			
	45-80	0-2	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Blue Lake	0-2	 		2.00-6.00					5	2	134
	2-7	0-8	1.35-1.65	2.00-6.00	0.09-0.12	0.0-3.0	.15	.17			
	7-9		1.30-1.70	1	0.06-0.11		.15	.17			
	9-27		1.30-1.70	1	0.06-0.11	1	1.15	.17			
	27-80 	0-10	1.35-1.65	2.00-6.00	0.07-0.10	0.0-3.0	.15	.17	 	 	
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6		1.30-1.55				.15	.15			
	6-8		1.30-1.55	'		1	.15	.15		!	!
	8-16		1.40-1.65	'			.15	.15			
	16-26   26-80		1.55-1.65 1.55-1.65	'			1.15	.15   .15	 	l I	
	20-80	0-10		0.00-20.00		0.0-2.9	.13	.13		İ	 
285B:						ļ	į		į	į	
Halfaday	0-2			6.00-20.00					5	1	220
	2-9   9-10		1.30-1.65 1.30-1.70	1			1.15	.15   .15	 	 	
	10-35		1.40-1.65	1			1.15	1.15	 	l I	
	35-80		1.55-1.65	1		1	.15	.15		į	
Kinross	   0-3	 	  0.10-0.35	   6.00-20.00	  0.35-0.45	 			   3	   2	   134
	3-14		1.40-1.70	1		1	.15	.15		İ	i
	14-22	0-5	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15	į	İ	į
	22-35	0-3	1.40-1.70	6.00-20.00	0.04-0.09	0.0-2.9	.15	.15			
	35-80	0-1	1.40-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.15	.15			
286B:		! 	! 	 	 						
Greylock	0-1		0.10-0.20	0.60-2.00	0.45-0.55				5	3	86
	1-6		1.30-1.60	'	0.12-0.18		.20	.24			
	6-7		1.30-1.65	1	0.09-0.18		.20	.24			
	7-9   9-19		1.35-1.70	'	0.11-0.17		.20	.24			
	19-19		1.35-1.70 1.50-1.75	1	0.11-0.17		.20	.24	 	 	
	26-34				0.08-0.17		.24	.28		 	i
	34-80		!	0.60-2.00	0.11-0.16	!		.28		į	İ
Cookson	   0-3	 	  0_05_0_15	   6.00-20.00	  0 55-0 65	 			   4	   5	   56
COOKSOII	3-7			0.60-6.00			1	.24	=	3	30
	7-11			0.60-6.00					İ	i	i
	11-16	0-18	1.35-1.70	0.60-6.00	0.15-0.24	0.0-2.9	.43	.43	į	į	į
	16-21	0-18	1.35-1.70	0.60-6.00	0.15-0.24	0.0-2.9	.24	.24			
	21-31		1	0.60-2.00		1					
	31-36 36-80	0-25	1.60-1.80	0.60-2.00	0.10-0.22	0.0-2.9	.24	.24	 		
	30-00										
287B:											
McMaster	0-2 2-4			2.00-6.00					3	3	56
	2-4			2.00-6.00				.24   .17	l I	I I	1
	8-11			2.00-6.00				.24		ĺ	i
	11-24			6.00-20.00				.17	i	İ	i
				'					i		i
	24-39	0-5	1.50-1.70	20.00-60.00	0.01-0.02	0.0-3.0	.02	.10			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	   Moist   bulk	Permea-	  Available   water	Linear extensi-		on fac		erodi-	
did boll name		l I	density	(Ksat)	capacity	bility	K	Kf		group	
	In	Pct	g/cc	In/hr	In/in	Pct			-		Index
287B:											
Davies	0 - 4	 	 	2.00-6.00	  0 35_0 45	 		 	   5	4	   86
Davies	4-11	1	1	2.00-6.00	1	1	.05	.24	]	*	00 
	11-80		1	20.00-60.00	1	1	1.10	.02			
290A:		ĺ	 	 	 	 	 	 	 	 	 
Namur	0-3	5-10	1.35-1.55	0.60-2.00	0.19-0.24	0.0-3.0	.28	.37	1	5	56
į	3 - 6	5-10	1.40-1.70	0.60-2.00	0.19-0.24	0.0-3.0	.28	.37	į	į	j
	6-80			0.00-0.60							
Ruse	0 - 7	0-20	  1.10-1.60	0.60-6.00	0.14-0.24	0.0-2.9	.28	.28	1	8	   0
	7-11	0-20	1.50-1.80	0.60-6.00	0.11-0.15	0.0-2.9	.24	.24			
	11-15	0-20	1.50-1.80	0.60-6.00	0.10-0.14	0.0-2.9	.24	.24			
	15-80			0.00-0.60							 
292B:				 							 
Mashek	0 - 6	2-6	1.30-1.60	0.60-2.00	0.14-0.18	0.0-2.9	.20	.24	5	3	86
	6-11			0.60-2.00							
	11-38		1	0.60-2.00	1	1	.20	.24			
	38-63			0.00-0.06				.24			
	63-80	0-4	1.50-1.60 	20.00-60.00	0.05-0.10 	0.0-2.9	.05	.10	 	 	 
296D:		į	İ	İ	İ	į	į	İ	İ	İ	İ
Islandlake	0-1		1	6.00-20.00	1	1			5	1	220
	1-2			6.00-20.00			.15	.15			
	2-8			6.00-20.00			1.15				
	8-9 9-41		1	6.00-20.00 6.00-20.00	1	1	1.15	.15   .15	 		 
	41-80			6.00-20.00			1.15	1.15	 		 
McMillan	0-1	 	 	0.60-2.00	 	 		 	   4	   3	   86
Monifican	1-4	1	1	0.60-2.00	1	1	.24	.24	-	]	00
	4-6		1	0.60-2.00	1	1	.24	.24	i	i	i I
i	6-9	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37	İ	i	İ
į	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37	į	į	j
	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	1.10	.15			
	22-32			6.00-20.00			.10	.15			
	32-80	1-7 	1.55-1.75 	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15 	 	 	 
296E:		İ					į	į			ĺ
Islandlake				6.00-20.00	1				5	2	134
	1-2			6.00-20.00			.15	.15			
	2-8 8-9			6.00-20.00			1.15	15	 	 	l I
	9-41			6.00-20.00				.15   .15	 	 	l I
	41-80			6.00-20.00			1.15	1.15			
McMillan	0-1	 		0.60-2.00		 		 	   4	   3	   86
MCMIII an	1-4		1	0.60-2.00		1	.24	.24	*	3	00 
	4-6			0.60-2.00				.24	İ	İ	! 
	6-9			0.60-2.00				.37	İ	i	İ
į	9-16	3-7	1.35-1.70	0.60-2.00	0.14-0.22	0.0-2.9	.37	.37	İ	į	j
į	16-22	1-5	1.40-1.65	6.00-20.00	0.02-0.04	0.0-2.9	.10	.15	į	į	j
	22-32			6.00-20.00				.15			
	32-80	1-7 	1.55-1.75 	6.00-20.00	U.02-0.04 	0.0-2.9 	.10	.15 	 	[ [	 
297B:			İ		İ	İ	İ	İ			
Rubicon	0-3			6.00-20.00			.15	.15	5	1	220
	3-28			6.00-20.00				.15			ļ
	28-36			6.00-20.00			1	.15			l
	36-80	U-5	1.50-1.60	. b.uu-20.00	10.02-0.07	1 0.0-2.9	.15	.15	1	1	1

Table 17.--Physical Properties of the Soils--Continued

Map symbol	   Depth	Clay	Moist	Permea-	  Available		Erosi	on fac	tors	erodi-	Wind  erodi-
and soil name			bulk	bility	water	extensi-				bility	bility
			density	(Ksat)	capacity	bility	K	Kf	Т	group	index
	In	Pct	g/cc	In/hr	In/in	Pct				!	
0000											
297D: Rubicon	   0-3	   0-5	  1.30-1.55	6.00-20.00	10 06 0 12	0.0-2.9	15	1.15	   5	1 1	   220
Rubicon	0-3   3-28		1.30-1.55   1.30-1.60		1	1	1.15	1.15	5	+	220
	3-28		1.30-1.60   1.50-1.60				1.15	1.15	 		 
	36-80		1.50-1.60				1.15	1 .15	 	1	 
							123	120	İ	i	 
298B:		į	j i		İ	İ	İ	į	į	į	į
Wurtsmith	0-1			6.00-20.00					5	1	220
	1-4	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	4-24	0-2	1.40-1.65	6.00-20.00	0.04-0.08	0.0-2.9	.15	.15			
	24-80	0-2	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15		!	
- 6 1									_		
Deford	0-4   4-80		0.20-0.30		1	1			5	2	134
	4-80 	0-10	1.40-1.65	6.00-20.00	0.05-0.08	0.0-2.9	.15	1.15	 	1	 
299F:		 			 			l	 	1	 
Shelldrake	0-1	 	 	6.00-20.00	 				   5	1	250
biiciiaianc	1-3	 	 	6.00-20.00	1				]	-	230
	3-4	1	  1.30-1.55		1	1	.15	.15	İ	i	
	4-80		1.55-1.65	6.00-20.00	1	1	.15	.15	i	i	İ
		İ	i i		İ	i	i	İ	İ	İ	İ
300F:		į	j j		İ	İ	İ	i	İ	į	į
Shelldrake	0-1		i i	6.00-20.00					5	1	250
	1-3		i i	6.00-20.00					ĺ	Ì	ĺ
	3 - 4	0-4	1.30-1.55	6.00-20.00	0.07-0.09		.15	.15			
	4-80	0-4	1.55-1.65	6.00-20.00	0.05-0.07		.15	.15			
									_		
Dune land									5	1	220
301F:		l I	 		l I	l I		l I	 	1	 
Cookson	0-3	 	  0.05-0.15	6.00-20.00	0.55-0.65				4	3	86
	3-7		1.30-1.60				.20	.24	-	-	
	7-11		1.35-1.70		1	1	.28	.28	i	i	İ
	11-16		1.35-1.70				.43	.43	İ	İ	İ
	16-21	0-18	1.35-1.70	0.60-6.00	0.15-0.24	0.0-2.9	.24	.24	İ	į	į
	21-31	5-25	1.35-1.71	0.60-2.00	0.11-0.22	0.0-2.9	.32	.32	İ	İ	į
	31-36	0-25	1.60-1.80	0.60-2.00	0.10-0.22	0.0-2.9	.24	.24	ĺ	Ì	ĺ
j	36-80		i i	0.00-0.60					ĺ	Ì	ĺ
Nykanen	0 - 4	4-8	1.35-1.60	0.60-2.00	0.14-0.22		.37	.37	2	3	86
	4-14		1.35-1.70		0.14-0.19	!	.28	.37			
	14-25			0.20-0.60							
	25-80			0.00-0.20							
302B:		l I	 		l I	l I		l I	 	1	 
Dillingham	   0-1	 	 	2.00-6.00	  0 45_0 55				   5	1 2	134
DIIIIIgiiam	1-8			2.00-6.00			.17	.17		-	131
	8-11		1.40-1.70				1.17	.17	 	i	 
	11-21		1.40-1.70				.17	.17	İ	i	
	21-31		1.80-2.10				.17	.17	i	i	İ
	31-80		1.55-1.75				.17	.17	İ	İ	į
j			ı i								
Kalkaska	0-2			6.00-20.00	1	1	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6-8			6.00-20.00			.15	.15			
	8-16		1.40-1.65				.15	.15		!	
	16-26		1.55-1.65		1	1	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
3020.		 	 		 	1		I	 	1	l I
302D:	l	I	1		I	I	1	1	1	I	I

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	   Clay 	   Moist   bulk	Permea- bility	  Available   water	   Linear  extensi-	EFOSI	on fact	Lors 		Wind  erodi-  bility
and borr name		! 	density	(Ksat)	capacity	bility	K	   Kf	T	group	
	In	Pct	g/cc	In/hr	In/in	Pct	i i	İ	<u>'                                     </u>		Ī
		ĺ					Ì	ĺ	ĺ	ĺ	ĺ
Dillingham	0-1			2.00-6.00					4	2	134
	1-8		1.30-1.60		0.10-0.12	0.0-2.9	.17	.17			
	8-11 11-21		1.40-1.70 1.40-1.70		0.10-0.12	1	17	.17   .17	 		
	21-31		1.80-2.10	0.06-0.20	0.10-0.12	1	1.17	.17	 	 	
	31-80		1.55-1.75	2.00-6.00	0.02-0.04	1	.17	1 .17	 	i i	i
		İ							İ	i	i
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	6 - 8		1.30-1.55				.15	.15			
	8-16		1.40-1.65				.15	.15			
	16-26		1.55-1.65				.15	1.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	 	 	
302E:		l I	l I		 	l I		i	 	 	
Dillingham	0-1			2.00-6.00		i			4	2	134
J	1-8	1-5	1.30-1.60	2.00-6.00	0.10-0.12	0.0-2.9	.17	.17	İ	i	i
j	8-11	1-5	1.40-1.70	2.00-6.00	0.10-0.12	0.0-2.9	.17	.17	İ	į	į
	11-21		1.40-1.70		0.10-0.12	0.0-2.9	.17	.17			
	21-31		1.80-2.10		0.03-0.06		.17	.17			
	31-80	0-5	1.55-1.75	2.00-6.00	0.02-0.04	0.0-2.9	.17	.17			
W = 1 l== = l==	0.0	0.10	  1.30-1.55			0.0-2.9	1.15				   220
Kalkaska	0-2 2-6		1.30-1.55				1.15	.15   .15	5 	1	220
	6-8		1.30-1.55			1	.15	.15	 	i i	i
	8-16		1.40-1.65				.15	.15	İ	i	i
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	į	į	į
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
302F:							ļ				
Dillingham	0-1 1-8	   1-5	  1.30-1.60	2.00-6.00		0.0-2.9		   .17	4	2	134
	8-11		1.40-1.70		0.10-0.12		1.17	.17	 	 	
	11-21		1.40-1.70		0.10-0.12		.17	1 .17	 	 	
	21-31		1.80-2.10		0.03-0.06		.17	.17	İ	i	i
	31-80	0-5	1.55-1.75	2.00-6.00	0.02-0.04	0.0-2.9	.17	.17	į	į	į
j		ĺ	ĺ		ĺ	ĺ	Ì	ĺ	ĺ	İ	ĺ
Kalkaska	0-2		1.30-1.55				.15	.15	5	1	220
	2-6		1.30-1.55			1	.15	.15			!
	6-8		1.30-1.55			1	.15	1.15			
	8-16 16-26		1.40-1.65  1.55-1.65				1.15	.15   .15	 	 	
	26-80			6.00-20.00			.15	.15	 		i
		i							İ	i	i
303B:		į	İ		İ	İ	į	į	į	į	į
Kiva	0-3	2-6	1.30-1.60	0.60-2.00	0.09-0.18	0.0-2.9	.24	.24	3	3	86
	3 - 6			2.00-6.00			.15	.17			
	6-15			0.60-2.00			.24	.24		!	!
	15-23			6.00-20.00			.10	1.17			
	23-80	U-2	1.55-1.65	20.00-60.00	U.UI-U.U3	0.0-2.9	.05	.10	 		I
Trenary	0-2	1-10	1.30-1.60	0.60-2.00	0.11-0.24	0.0-2.9	.28	.28	   5	   5	   56
	2-6			0.60-2.00			.20	.24	]		
	6-12			0.60-2.00			.20	.24	İ	i	i
j	12-17			0.60-2.00			.20	.24		İ	İ
	17-26		1	0.60-2.00		1	.20	.24			
	26-37	15-27	1.35-1.70	0.60-2.00	0.15-0.17	0.0-3.0	.28	.32			
!	37-80			0.60-2.00	0.10-0.15	0.0-3.0	.20	.28		i	

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	Clay	   Moist	   Permea-	  Available	   Tinear	Erosi	on fac	tors	Wind  erodi-	Wind  erodi-
and soil name	рерсп	Clay	bulk	bility	water	extensi-		1		bility	
and soll name		l I	density	(Ksat)	capacity	bility	K	Kf	   •••	group	
	In	Pct	g/cc	In/hr	In/in	Pct	<del> </del>		-		
303D:		 	 	 	 	 					 
Kiva	0-3	2-6	1.30-1.60	0.60-2.00	  0.09-0.18	0.0-2.9	.24	.24	3	3	86
	3-6		1	2.00-6.00			.15	.17			
	6-15			0.60-2.00			.24	.24	i	i	İ
	15-23		1	6.00-20.00		1		.17	i	i	İ
	23-80		1	20.00-60.00		1	.05	.10			į
Trenary	0-2	   1-10	  1.30-1.60	0.60-2.00	  0.11-0.24	0.0-2.9	.28	.28	   5	5	   56
	2-6			0.60-2.00			.20	.24	-	i -	
	6-12		1.35-1.65	1		1	.20	.24	i	İ	i
	12-17		1	0.60-2.00		1	.20	.24	i	İ	i
	17-26		1	0.60-2.00		1	.20	.24	i	İ	i
	26-37		1	0.60-2.00		1	.28	.32	i	İ	i
	37-80		1.70-1.85	1		1	.20	.28			į
303E:		 	 	 	 	 		 			 
Kiva	0-3	2-6	1.30-1.60	0.60-2.00	0.09-0.18	0.0-2.9	.24	.24	3	3	86
	3 - 6			2.00-6.00			.15	.17			
	6-15		1	0.60-2.00		1		.24			
	15-23		1	6.00-20.00		1	.10	.17			
	23-80	0-2	1.55-1.65	20.00-60.00	0.01-0.03	0.0-2.9	.05	.10	 		 
Trenary	0-2	1-10	1.30-1.60	0.60-2.00	0.11-0.24	0.0-2.9	.28	.28	5	5	56
j	2-6	2-8	1.30-1.60	0.60-2.00	0.14-0.24	0.0-3.0	.20	.24	ĺ	İ	ĺ
j	6-12	2-8	1.35-1.65	0.60-2.00	0.14-0.24	0.0-3.0	.20	.24	ĺ	İ	ĺ
j	12-17	4-12	1.35-1.70	0.60-2.00	0.13-0.17	0.0-3.0	.20	.24	ĺ	İ	ĺ
	17-26	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-3.0	.20	.24			
	26-37	15-27	1.35-1.70	0.60-2.00	0.15-0.17	0.0-3.0	.28	.32			
	37-80	5-14	1.70-1.85	0.60-2.00	0.10-0.15	0.0-3.0	.20	.28			
305B:		 	 	 	 						
Wurtsmith	0-1			6.00-20.00					5	1	220
	1-4	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	4-24			6.00-20.00			.15	.15			
	24-80	0-2	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15			
Meehan	0-3	 	 	6.00-20.00	 	 			   5	   1	220
į	3-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15	İ	İ	į
į	5-28	0-2	1.40-1.65	6.00-20.00	0.04-0.08	0.0-2.9	.15	.15	İ	İ	į
	28-80	0-2	1.55-1.65	6.00-20.00	0.04-0.07	0.0-2.9	.15	.15	į	İ	
306C:		 	 	 	 	 			 		 
Deerton	0-1			6.00-20.00	0.35-0.45				4	1	220
	1-9	0-5	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	9-10	0-10	1.40-1.65	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	10-25	0-10	1.40-1.65	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	25-39			0.20-0.60							
	39-80			0.00-0.20							
Tokiahok	0-2	 	 	6.00-20.00	 	 			4	2	134
i	2-11	0-10	1.35-1.65	6.00-20.00	0.10-0.12	0.0-2.9	.15	.17			
i	11-15	0-10	1.30-1.70	6.00-20.00	0.07-0.12	0.0-2.9	.15	.17			
į	15-24	0-10	1.30-1.70	6.00-20.00	0.07-0.12	0.0-2.9	.15	.17			
į	24-59	2-15	1.80-2.10	0.00-0.06	0.02-0.04	0.0-2.9	.20	.24			
	59-80	8-15	1.60-1.80	0.60-2.00	0.09-0.13	0.0-2.9	.20	.24			
Jeske	0-3	 	0.30-0.40	   6.00-20.00	0.35-0.45	 			   2	   1	   220
i	3-21		1.50-1.65				.15	.15	İ	į	į
i	21-31			0.20-0.60					İ	į	į
i	31-80	i	i	0.00-0.20	i	i	j	i	İ	İ	İ
į											

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	   Clay	   Moist     bulk	Permea- bility	  Available   water	   Linear  extensi-		on fact			Wind  erodi-
and soll name		l I	density	(Ksat)	capacity	bility	l K	   Kf		group	
	In	Pct	g/cc	In/hr	In/in	Pct	1		-	group	IIIGEX
į		j	į į		İ	İ	İ	į i		İ	İ
307B:							ļ				
Rubicon	0-2			6.00-20.00	1				5	1	220
	2-5	1		6.00-20.00	1		1.15	.15		 	
	5-30 30-38	1		6.00-20.00 6.00-20.00	1		1.15	.15   .15		 	l I
	38-80			6.00-20.00	1		1.15	1.15		 	 
į		j	į į		j	İ	İ	į i		İ	İ
307D:							ļ				
Rubicon	0-2			6.00-20.00	1				5	1	220
	2-5			6.00-20.00 6.00-20.00			1.15	.15   .15		 	
	5-30 30-38	1		6.00-20.00	1		1.15	.15		 	l I
	38-80	1		6.00-20.00	1		1.15	1.15		 	 
											İ
308B:									_		
Rubicon	0-2			6.00-20.00	1				5	1	220
	2-5	1		6.00-20.00	1		1.15	.15		 	
	5-30 30-38	1		6.00-20.00 6.00-20.00	1		1.15	.15   .15		 	1
	38-80	1	1.50-1.60		1		1.15	1.15		 	l l
	30 00	03		0.00 20.00		0.0 2.5	.13	.13			
Sultz	0-1	i	i i	6.00-20.00			j	j j	5	1	250
	1-2	1		6.00-20.00	1		.15	.15			
	2 - 6	1		6.00-20.00	1		.15	.15			
	6-18	1		6.00-20.00	1		.15	.15			
	18-51 51-80	1		6.00-20.00 0.20-0.60	1		.15	.15		 	
	21-80	0-15	1.33-1./3  	0.20-0.60	0.08-0.20 	0.0-2.9	.24	.24		 	
308D:		İ			İ		İ	i		İ	İ
Rubicon	0-2			6.00-20.00					5	1	220
	2-5	0-5	1.30-1.55	6.00-20.00	0.06-0.12	0.0-2.9	.15	.15			
	5-30	1		6.00-20.00	1		.15	.15			
	30-38	1		6.00-20.00	1		.15	.15			
	38-80	0-5 	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15		 	l I
Sultz	0-1	 	 	6.00-20.00	 	 			   5	1	250
i	1-2	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			İ
į	2-6	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15		İ	İ
	6-18	0-10	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	18-51	1		6.00-20.00	1		.15	.15			
	51-80	0-15	1.55-1.75	0.20-0.60	0.08-0.20	0.0-2.9	.24	.24			
309B:		 	 		 	 		 		 	
Rubicon	0-2			6.00-20.00					5	1	220
	2-5			6.00-20.00							İ
j	5-30	0-5	1.30-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	30-38	1		6.00-20.00	1			.15			
	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
309D:		 	 		l I	 	l I	 		 	l I
Rubicon	0-2	 	 	6.00-20.00		 			   5	1	220
	2-5	1		6.00-20.00			.15			- 	
i	5-30			6.00-20.00							İ
į	30-38	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
ļ	38-80	0-5	1.50-1.60	6.00-20.00	0.02-0.07	0.0-2.9	.15	.15			
3108.		 			 	 		 		 	
310B:   Kalkaska	0-2	0-10	  1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	1.15	.15	   5	   1	220
<del></del>	2-6			6.00-20.00			.15	.15	i	_	i
i	6-8			6.00-20.00						İ	İ
i	8-16			6.00-20.00			.15	.15			İ
i	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
l l	26-80			6.00-20.00			1				

Table 17.--Physical Properties of the Soils--Continued

Map symbol	   Depth	Clay	   Moist	Permea-	  Available	1	Erosi	on fac	tors	erodi-	
and soil name			bulk	bility	water	extensi-				bility	
		<u> </u>	density	(Ksat)	capacity	bility	K	Kf	Т	group	index
	In	Pct	g/cc	In/hr	In/in	Pct					
310D:	l I	l I	 			l I	l I	l I	 	 	 
Kalkaska	0-2	0-10	  1.30-1.55	6.00-20.00	  0.06-0.09	0.0-2.9	.15	.15	   5	1	220
	2-6			6.00-20.00		1		.15		-	
	6-8			6.00-20.00			.15	.15	İ	i	İ
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	į	į	į
	16-26			6.00-20.00			.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
2100.							1				
310E: Kalkaska	   0-2	   0-10	  1 30_1 55	6.00-20.00	  n_ns_n_n9	0 0-2 9	1 .15	1 .15	   5	1	220
Raikaska	2-6			6.00-20.00		1		1.15	]	-	220
	6-8			6.00-20.00				.15	İ	İ	
	8-16			6.00-20.00				.15	İ	İ	İ
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	į	į	į
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
311B:									_		
Kalkaska				6.00-20.00			.15	.15	5	1	220
	2-6			6.00-20.00		1		.15			
	6-8   8-16			6.00-20.00 6.00-20.00				.15   .15	 	 	l I
	16-26			6.00-20.00		1		1.15	 	 	 
	26-80			6.00-20.00			.15	.15	i	i	İ
	į	į	j i		İ	İ	į	į	į	į	į
311D:	ĺ	ĺ	į į			ĺ	Ì	ĺ	İ	İ	ĺ
Kalkaska				6.00-20.00			.15	.15	5	1	220
	2-6			6.00-20.00				.15			
	6-8			6.00-20.00				.15			
	8-16   16-26			6.00-20.00 6.00-20.00		1		.15			
	26-80			6.00-20.00			1.15	.15	 	 	l I
	20-00	0-10	1.55-1.65	0.00-20.00	0.03-0.07 	0.0-2.5	.13	.13	 	i i	 
312B:	İ	İ	i i			İ	İ	i	i	i	İ
Islandlake	0-1	j	j j	6.00-20.00		j	j	i	5	2	134
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	2-8			6.00-20.00				.15			
	8-9			6.00-20.00				.15		!	
	9-41			6.00-20.00				.15			
	41-80	0-9 	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15	 	 	l I
312D:	l I	İ	 			I I	İ	İ	 	i i	 
Islandlake	0-1	i	i i	6.00-20.00			i		5	1	220
	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15	į	į	į
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8-9			6.00-20.00				.15			
	9-41	1		6.00-20.00				.15		!	
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
313B:	l I	l I	 		 	l I	l I	l I	 	 	 
Kalkaska	0-2	   0-10	  1 30-1 55	6.00-20.00	  0 06-0 09	0 0-2 9	.15	.15	5	1 1	220
1101110110	2-6			6.00-20.00				.15		-	===
	6-8			6.00-20.00				.15	i	i	į
	8-16			6.00-20.00				.15	İ	İ	İ
	16-26			6.00-20.00				.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			ļ
2145											
314B:				2 00 6 00	0 00 0 10						
Blue Lake	0-5   5-7			2.00-6.00			1.15	.17   .17	5 	2	134
	7-27			2.00-6.00				1 .17	İ		İ
	27-80			2.00-6.00			.15	.17	i	i	İ
	i	i	i		i	i	i	i	i	i	i

Table 17.--Physical Properties of the Soils--Continued

Map symbol	Depth	   Clay	Moist	Permea-	Available	!	LEOS1	on fac	LOTS	erodi-	1
and soil name		 	bulk density	bility (Ksat)	water  capacity	extensi-	   K	   Kf	   T	bility  group	index
	In	Pct	g/cc	In/hr	In/in	Pct	1	KI	1	group	Index
	111	PCL	g/cc   	111/111	111/111	PCL		l I	 	I I	
315B:		! [	 		! [	I I	İ	i	 	İ	i
Blue Lake	0-5	0-8	1.35-1.65	2.00-6.00	0.09-0.12	0.0-3.0	.15	.17	5	2	134
	5-7	0-8	1.30-1.70	2.00-6.00	0.06-0.11	0.0-3.0	.15	.17	İ	i	i
	7-27	0-8	1.30-1.70	2.00-6.00	0.06-0.11	0.0-3.0	.15	.17	į	į	į
j	27-80	0-10	1.35-1.65	2.00-6.00	0.07-0.10	0.0-3.0	.15	.17	İ	İ	ĺ
316B:											
Blue Lake	0-5				0.09-0.12		.15	.17	5	2	134
	5-7		1.30-1.70		0.06-0.11	1	.15	.17			
	7-27		1.30-1.70		0.06-0.11	1	.15	.17			
	27-80	0-10	1.35-1.65	2.00-6.00	0.07-0.10	0.0-3.0	.15	.17			
316D:		l I	l I		l I	l I	l I	1	 	 	
Blue Lake	0-5	0-8	  1.35-1.65	2.00-6.00	0.09-0.12	0.0-3.0	1 .15	   .17	   5	2	134
	5-7		1.30-1.70		0.06-0.12	1	1.15	1 .17		<u> </u>	134
	7-27		1.30-1.70		0.06-0.11	1	.15	1 .17			i
	27-80		1.35-1.65		0.07-0.10		.15	.17	i	i	i
		İ					İ	i	i	i	i
317B:		İ	İ		İ	İ	i	İ	İ	i	i
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	į	į	į
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26		1.55-1.65		1	1	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			!
							ļ	!		!	!
317D:									_		
Kalkaska	0-2			6.00-20.00	1	1	.15	.15	5	1	220
	2-6 6-8			6.00-20.00 6.00-20.00			1.15	.15   .15			
	8-16		1.30-1.55   1.40-1.65				1.15	.15	 	 	
	16-26		1.55-1.65		1	1	1.15	1.15	 	 	
	26-80		1.55-1.65		1	1	.15	1.15	 	İ	i
		0 =0					125	125	İ		i
318B:		İ			İ	İ	İ	i	İ	i	i
Islandlake	0-1			6.00-20.00	i	i		i	5	2	134
j	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15	į	İ	ĺ
	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	8 - 9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41		1.40-1.65				.15	.15			
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			!
							!				
318D:									_		
Islandlake	0-1			6.00-20.00			1.5		5	1	220
	1-2 2-8			6.00-20.00 6.00-20.00			1.15		 		
	8-9			6.00-20.00					 	 	l I
	9-41			6.00-20.00				1.15	 	 	i
	41-80			6.00-20.00			1.15	1.15		i	i
									i	i	i
319B:		İ			İ	İ	İ	i	i	i	i
Islandlake	0-1	i		6.00-20.00	i		i	i	5	2	134
j	1-2	0-9	1.30-1.45	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15	İ	İ	İ
j	2-8	0-9	1.30-1.55	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
İ	8 - 9	0-9	1.40-1.65	6.00-20.00	0.07-0.12	0.0-2.9	.15	.15			
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	41-80				0.05-0.10	0.0-2.9	.15	.15	1	1	1

Table 17.--Physical Properties of the Soils--Continued

Map symbol	   Depth	   Clay	   Moist	Permea-	  Available		Erosi	on fac	tors	erodi-	
and soil name			bulk	bility	water	extensi-				bility	bility
			density	(Ksat)	capacity	bility	K	Kf	Т	group	index
	In	Pct	g/cc	In/hr	In/in	Pct					
2100											
319D: Islandlake	   0-1	 	 	6.00-20.00	 	 			   5	1	220
IDIANALANC	1-2	1	  1.30-1.45			0.0-2.9	.15	.15	]	-	220
	2-8			6.00-20.00			.15	.15	i	i	İ
	8-9			6.00-20.00			.15	.15	İ	i	İ
	9-41	0-5	1.40-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15	į	į	į
	41-80	0-9	1.55-1.65	6.00-20.00	0.05-0.10	0.0-2.9	.15	.15			
2100											
319E: Islandlake	   0-1	 	 	6.00-20.00	 	 			   5	   2	134
IDIANALANC	1-2	1	  1.30-1.45			0.0-2.9	.15	.15	]	-	131
	2-8			6.00-20.00			.15	.15	İ	İ	
	8-9			6.00-20.00			.15	.15	i	i	i
	9-41			6.00-20.00				.15	i	i	i
	41-80			6.00-20.00			.15	.15	į	i	İ
319F:							ļ				
Islandlake				6.00-20.00		1			5	2	134
	1-2			6.00-20.00			.15	.15			
	2-8			6.00-20.00			.15	.15			
	8-9			6.00-20.00		1	1.15	1.15			 
	9-41   41-80			6.00-20.00			1.15	.15	 	 	l I
	41-00	0-3 	1.33-1.03	0.00-20.00	0.03-0.10 	0.0-2.9	.13	.13	 	 	 
320B:		! 	i			i	İ	i	i	i	İ
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	İ	i	į
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	İ	į	į
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15	į	İ	ĺ
	16-26	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
2015											
321B: Kalkaska	   0-2	   0-10	  1 30_1 55	6.00-20.00	  n_ns_n_ng	0 0-2 9	1.15	1 .15	   5	   1	220
Rainaska	2-6			6.00-20.00				1.15	]	-	220
	6-8			6.00-20.00				1.15	 	i	İ
	8-16			6.00-20.00				.15	İ		İ
	16-26			6.00-20.00				.15	i	i	i
	26-80			6.00-20.00			.15	.15	į	i	İ
Deerton	0-1			6.00-20.00		1			4	2	134
	1-9			6.00-20.00			.15	.15			!
	9-10			6.00-20.00			.15	.15			
	10-25	0-10	1.40-1.65  	6.00-20.00		0.0-2.9	.15	.15			
	25-39 39-80	 	 	0.20-0.60 0.00-0.20	 				 	 	l I
	33-00	 	 	0.00-0.20	 				 	i i	 
321D:		! 	i			i	İ	i	i	i	İ
Kalkaska	0-2	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	İ	į	į
	6-8	0-10	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15	į	İ	ĺ
	8-16	0-10	1.40-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	16-26			6.00-20.00				.15			
	26-80	0-10	1.55-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Doomton		 		6 00 20 00	0 25 0 45	[			4		
Deerton	0-1	   0-5	  1 30.1 EE	6.00-20.00		1	15	15	4	1	220
	1-9   9-10			6.00-20.00 6.00-20.00			1.15	1.15	 	I	I I
	9-10   10-25			6.00-20.00	•		1.15	.15	l I	1	I I
	25-39	0-10		0.20-0.60						İ	İ
	39-80			0.00-0.20						i	İ
		i I			i I	i	i	i	İ	i	i

Table 18.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	   Depth   	   Soil  reaction 	  Organic   matter 	:		  Calcium  carbonate 
	In	pH	Pct	meq/100 g	meq/100 g	Pct
10. Beaches	     	     	     	     	     	     
11C:	! 	İ	İ			! 
Deer Park	0-2	3.5-6.0	50-90			0
	2-3	3.5-6.0			2.5-4.2	0
	3-10   10-21	3.5-6.0			0.0-1.4	!
	21-80	3.5-6.5			0.0-1.4	0   0
	00					
11E:	j	į	į	İ	į	j
Deer Park		3.5-6.0				0
	2-3		2.0-5.0		2.5-4.2	0
	3-10	3.5-6.0	0.5-2.0		0.0-1.4	
	10-21   21-80	3.5-6.5			0.0-1.4	0   0
	21 00					"
11F:	j	į	į	İ	į	j
Deer Park		3.5-6.0				0
	2-3		2.0-5.0		2.5-4.2	0
	3-10 10-21	3.5-6.0	0.5-2.0		0.0-1.4	!
	21-80	3.5-6.5			0.0-1.4	0   0
	21 00	3.3 0.3	0.0 0.5	i	0.0 1.1	"
12B:	j	į	į	İ	į	j
Rubicon	0-2	4.5-5.5				0
	2-5	4.5-6.0			0.2-5.0	0
	5-30   30-38	4.5-6.0		1.0-9.0	 	0   0
	38-80	4.5-6.5			 	0   0
12D:	İ	Ì	Ì	İ	İ	İ
Rubicon	0-2	4.5-5.5				0
	2-5	4.5-6.0			0.2-5.0	0
	5-30 30-38	4.5-6.0		1.0-9.0	 	0   0
		4.5-6.5		1		0   0
					İ	
12E:		ĺ	ĺ			
Rubicon	0-2	4.5-5.5				0
	2-5	4.5-6.0			0.2-5.0	0
	5-30	4.5-6.0		1.0-9.0	 	0   0
				0.2-4.0		0   0
13B:		[	[			
Kalkaska		3.5-6.0			2.0-11	0
	2-6		0.1-1.0		1.0-5.0	
		4.5-6.0			2.0-9.0	
		4.5-6.5			0.2-4.0	
				0.2-4.0		0
	İ	İ	İ	İ		İ

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic   matter	exchange	Effective  cation-  exchange  capacity	Calcium  carbonate 
	In	рН	Pct	meq/100 g	meq/100 g	Pct
ļ.						
13D:						
Kalkaska	0-2 2-6	3.5-6.0	0.1-1.0		2.0-11	0   0
I	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0   0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0   0
i I	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
Ï	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
į			İ	İ	ĺ	ĺ
13E:	0.0					
Kalkaska	0-2 2-6	3.5-6.0	0.1-1.0		2.0-11	0
ļ	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0   0
I	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0   0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0   0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0   0
į		į	j	İ	j	j
15A:						
Croswell	0-2	4.5-5.0	50-90			0
ļ	2-6	3.5-6.0	0.1-1.0		0.2-7.0	0
l I	6-15 15-22	4.5-6.0	0.5-3.0	0.0-7.0	1.0-12	0   0
 	22-80	5.1-6.5	0.0-0.5	0.0-7.0	 	0   0
	22-00	3.1-0.3	0.0-0.5	0.0-7.0	 	<b>0</b>
16A:		į	j	İ	j	j
Paquin	0-2	3.5-5.0	50-90			0
	2-12	3.5-5.5	0.5-2.0		3.0-5.0	0
ļ	12-14	3.5-5.5	2.0-5.0		1.0-4.0	0
ļ	14-17	3.5-5.5	1.0-5.0		1.0-2.0	0
ļ	17-27	3.5-5.5	1.0-5.0		1.0-2.0	0
 	27-34 34-80	4.5-6.0	0.2-1.0	3.0-5.0	1.0-2.0	0   0
ļ	34-00	4.5-0.5	0.0-0.5	3.0-3.0		
17A:			İ		ĺ	ĺ
Au Gres	0-2	3.5-4.4	50-90			0
ļ	2-7	3.5-6.0	0.1-1.0		0.2-7.0	0
ļ	7-17	4.5-6.5	0.5-3.0	1.0-12		0
	17-28 28-80	4.5-6.5	0.0-0.5		1.0-7.0	0   0
 	20-00	4.5-6.5	0.0-0.5		1.0-7.0	U
18:		İ	İ			İ
Kinross	0-3	3.4-5.0	75-90		100-180	0
	3-14	3.6-5.0	0.5-2.0		1.0-10	0
	14-22	3.6-6.0	•		1.0-10	0
	22-35		0.5-3.0	'	1.0-10	0
	35-80	4.5-6.5	0.0-0.5		1.0-2.0	0 
19:						! 
	0 - 4	4.5-6.0	75-90		75-135	0
Deford	4-80	5.1-7.8	0.0-0.5		0.0-5.3	0
Deford	4-00	i		1	I .	I
İ	4-00			1	 	i
Deford  		     3.0-5.5	60-90	     120-180	   	     0
    21 <b>A:</b>	0-4 4-5	   3.0-5.5   3.5-5.5	•	   120-180 	       4.0-20	   0   0
    21 <b>A:</b>	0 - 4	3.5-5.5	2.0-5.0		1	0
    21 <b>A:</b>	0 - 4 4 - 5	3.5-5.5	2.0-5.0	 	4.0-20	0
    21 <b>A:</b>	0-4 4-5 5-14	3.5-5.5	2.0-5.0 0.5-2.0 2.0-5.0	   	4.0-20   1.0-4.0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity	'	Calcium  carbonate 
	In	pН	Pct	meq/100 g	meq/100 g	Pct
24B:					İ	İ
Munising	0-1	4.5-5.5	50-90		 	   0
Muniaing	1-2	4.5-6.0	2.0-5.0		4.5-6.0	0
	2-10	4.5-6.0	0.5-2.0	i	1.0-8.0	0
	10-14	4.5-6.0	2.0-5.0		6.0-16	0
i	14-22	4.5-6.0	0.5-3.0		3.0-12	0
į	22-49	4.5-6.0	0.0-0.5	i	2.0-8.0	0
	49-63	4.5-6.0	0.0-0.5		6.0-21	0
	63-80	5.6-6.5	0.0-0.5	3.0-9.0		0
25B:						
Munising	0-1	4.5-5.5	50-90		 	0
	1-2	4.5-6.0	2.0-5.0		4.5-6.0	0
i	2-10	4.5-6.0	0.5-2.0	i	1.0-8.0	0
İ	10-14	4.5-6.0	2.0-5.0		6.0-16	0
j	14-22	4.5-6.0	0.5-3.0	i	3.0-12	0
j	22-49	4.5-6.0	0.0-0.5		2.0-8.0	0
j	49-63	4.5-6.0	0.0-0.5		6.0-21	0
	63-80	5.6-6.5	0.0-0.5	3.0-9.0		0
  Yalmer	0-1	3.5-6.0	50-90		 	   0
I & I MEI	1-3	3.5-6.0	2.0-5.0		4.0-12	0
	3-8	3.5-6.0	0.5-2.0		1.0-6.0	0
	8-11	3.5-6.0	2.0-5.0		4.0-12	0
i	11-24	3.5-6.0	0.5-3.0		1.0-8.0	0
i	24-40	3.5-6.0	0.0-0.5		2.0-8.0	0
į	40-66	3.5-6.0	0.0-0.5	i	4.0-10	0
	66-80	5.6-6.5	0.0-0.5	4.0-12		0
25D:					 	
Munising	0-1	4.5-5.5	50-90		 	   0
	1-2	4.5-6.0	2.0-5.0	i	4.5-6.0	0
i	2-10	4.5-6.0	0.5-2.0	i	1.0-8.0	0
İ	10-14	4.5-6.0	2.0-5.0		6.0-16	0
į	14-22	4.5-6.0	0.5-3.0	i	3.0-12	0
	22-49	4.5-6.0	0.0-0.5		2.0-8.0	0
	49-63	4.5-6.0	0.0-0.5		6.0-21	0
	63-80	5.6-6.5	0.0-0.5	3.0-9.0		0
  Yalmer	0-1	3.5-6.0	50-90		 	   0
	1-3	3.5-6.0	2.0-5.0		4.0-12	0
i	3-8	3.5-6.0	0.5-2.0	i	1.0-6.0	0
į	8-11	3.5-6.0	2.0-5.0	j	4.0-12	0
j	11-24	3.5-6.0	0.5-3.0		1.0-8.0	0
	24-40	3.5-6.0	0.0-0.5		2.0-8.0	0
	40-66	3.5-6.0	0.0-0.5		4.0-10	0
	66-80	5.6-6.5	0.0-0.5	4.0-12		0
   B1D:					 	 
Trenary	0-2	4.5-6.5	2.0-5.0	4.0-16	 	0
	2-6	1	0.5-2.0	1		0
i	6-12	'	2.0-5.0		2.0-16	0
i		1	0.5-3.0	1	2.0-16	0
i	17-26	5.1-6.5	•	'	1.0-10	0
i	26-37	5.1-7.8	0.0-0.5	4.0-12		0
į	37-80	6.6-8.4	0.0-0.5	2.0-9.0		10-30
	0-5	6.1-7.8	50-90	100-180	 	l I 0
Ensley						
Ensley	5-7	6.1-7.3	10-50	22-116		0
Ensley    		'	10-50	22-116	 	0 0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic   matter 	capacity	exchange capacity	carbonate
I	In	pH	Pct	meq/100 g	meq/100 g	Pct
35B:					!	!
Munising,		İ	İ	İ	j	j
calcareous						
substratum	0-1	3.5-5.5	50-90			0
ļ	1-3	4.5-6.0	0.5-2.0		3.0-12	0
ļ	3-6	4.5-6.0	2.0-5.0		6.0-20	0
	6-23 23-38	4.5-6.0   5.1-6.0	0.5-3.0	1.0-4.0	3.0-14	0   0
ļ Į	38-50	5.1-6.5	0.0-0.5	2.0-10	l	0
i	50-63	5.0-6.0	0.0-0.5	2.0-12		0
į	63-80	7.4-8.4	0.0-0.5	1.0-6.0	ļ	10-30
Yalmer,					 	 
calcareous						
substratum	0-1	3.5-5.5	50-90			0
ļ	1-2	3.5-5.5	0.5-2.0		4.0-18	0
	2-5 5-16	3.5-5.5	2.0-5.0		1.0-8.0   4.0-16	0   0
 	16-28	4.5-6.0	0.5-3.0	1.0-6.0		0   0
i	28-36	5.1-6.5	0.0-0.5	1.0-5.0		0
İ	36-62	5.1-6.5	0.0-0.5	2.0-10		0
į	62-80	7.4-8.4	0.0-0.5	1.0-6.0		10-30
Frohling,					 	 
calcareous						
substratum	0-2	4.5-5.5	50-90			0
ļ	2-5	4.5-5.5	0.5-2.0		0.7-9.0	0
l I	5-24 24-73	4.5-5.5	0.5-3.0	2.1-6.4	0.4-2.2	0
ļ	73-80	7.4-8.4	0.0-0.5	4.1-6.4		0   10-30
7B:					 	 
Grand Sable	0-1	4.5-5.5	50-90	i		0
į	1-4	4.5-5.5	2.0-5.0	j	4.0-12	0
ĺ	4-30	5.1-6.0	0.5-1.0	1.0-3.0		0
	30-32	5.1-6.0	0.5-2.0	1.5-6.6		0
ļ	32-43	5.1-6.5	0.5-3.0	1.0-6.0		0
	43-55	5.1-6.5	0.0-0.5	1.0-3.0		0
	55-80	5.1-6.5	0.0-0.5	1.0-3.0	 	0 
7E:   Grand Sable	0-1	4.5-5.5	50-90		 	   0
grand babie	1-4	1	2.0-5.0		4.0-12	0
i	4-30	'	'	1.0-3.0		0
į	30-32	'	'	1.5-6.6		0
į	32-43	5.1-6.5	0.5-3.0	1.0-6.0	i	0
	43-55	5.1-6.5	0.0-0.5	1.0-3.0		0
	55-80	5.1-6.5	0.0-0.5	1.0-3.0	 	0 
88B:						
Rhody	0-19	'	1	4.0-60		0
	19-36 36-41	6.1-7.3	0.0-5.0	0.0-1.0	 	0   0
	41-80					0
   Towes	0-19	   5.1-6.0	2.0-5.0		   4.0-12	   0
	19-22	1	0.5-1.0	1		0
i	22-26	6.1-7.3	'	0.0-1.0		0
İ	26-37					0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic   matter 		Effective  cation-  exchange  capacity	
	In	pН	Pct	meq/100 g	meq/100 g	Pct
40B:   Waiska, very				   	   	   
stony	0-1	3.5-5.5	50-90	i		0
į	1-4	3.5-6.0	0.5-2.0	i	1.0-6.0	0
	4-8	3.5-6.0	2.0-5.0		4.0-12	0
	8-18	3.5-6.0	0.5-3.0		1.0-8.0	0
	18-80	5.1-6.0	0.0-0.5		0.0-3.0	0 
42:					 	 
Davies	0-4	5.1-6.0	75-90	j		0
İ	4-11	5.1-6.5	0.5-1.0	1.0-6.0		0
	11-80	5.6-7.3	0.0-0.5	0.0-1.0		0
46:					 	 
Jacobsville,					! 	! 
very stony	0-5	4.5-5.5	75-90	100-180		0
į	5-9	4.5-6.0	0.5-2.0	i	3.0-12	0
	9-23	4.5-6.5	0.5-1.0		4.0-13	0
	23-36	5.1-6.5	0.0-0.5	2.0-13		0
	36-80					0
47C:					 	 
Deerton	0-1	3.5-6.0	50-90			0
	1-9	3.5-6.0	0.5-2.0	i	1.0-8.0	0
j	9-10	3.5-6.0	2.0-5.0	i	4.0-16	0
I	10-25	3.5-6.0	0.5-3.0		1.0-10	0
	25-39					0
	39-80					0 
Au Train	0-2	3.5-5.0	50-90		100-180	0
į	2-9	3.5-5.5	0.5-2.0	j	1.0-6.0	0
	9-14	3.5-5.5	2.0-5.0		4.0-10	0
	14-32					0
	32-80					0
47E:						 
Deerton	0-1	3.5-6.0	50-90			0
İ	1-9	3.5-6.0	0.5-2.0		1.0-8.0	0
	9-10	3.5-6.0	2.0-5.0		4.0-16	0
	10-25	3.5-6.0	0.5-3.0		1.0-10	0
	25-39					0
	39-80				 	0 
Au Train	0-2	3.5-5.0	50-90		100-180	0
j	2-9	3.5-5.5	0.5-2.0	i	1.0-6.0	0
	9-14	3.5-5.5	2.0-5.0		4.0-10	0
	14-32	!				0
	32-80				 	0 
48:					 	 
Burt	0-1	4.5-6.0	50-90			0
į	1-5	4.5-6.5	10-20	20-60		0
İ	5-19	!	!			0
	19-80					0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter 	exchange capacity		Calcium  carbonate   
	In	pН	Pct	meq/100 g	meq/100 g	Pct
49B:					 	 
Cookson	0-3	4.5-6.0	50-90	100-180	 	l   0
COOKBOII	3-7	4.5-6.0	0.1-2.0	0.2-15	l	0   0
	7-11	4.5-6.0	2.0-5.0	4.0-21	! 	0
	11-16	4.5-6.0	0.5-3.4	1.0-18		0
	16-21	5.6-7.3	0.0-1.0	0.0-13		0
	21-31	6.6-7.8	0.0-1.0	2.0-13	i	0-30
	31-36	7.4-8.4	0.0-0.5	0.0-12	i	0-30
	36-80					
51:					 	 
Nahma	0-11	6.1-7.3	75-90	100-180		0
	11-14	6.1-7.8	2.0-5.0	2.8-11		0
	14-17	6.1-7.8	2.0-5.0	2.8-11		0
	17-19	6.1-7.8	0.5-1.0	2.7-11		0
	19-24	6.6-8.4	0.0-0.5	2.6-11		10-30
	24-80				 	 
Ruse	0-7	6.1-7.8	10-30	20-72		0
	7-11	6.1-8.4	2.0-5.0	4.0-22		10-30
	11-15	6.1-8.4	0.5-1.0	1.0-14	i	10-30
	15-80					
52B:					 	 
Summerville	0-3	6.1-8.4	2.0-5.0	4.0-16		0
	3-13	5.6-8.4	0.5-1.0	1.0-8.0		0
	13-80					0
57:					 	 
Carbondale	0-38	5.1-7.3	75-90	100-180		0
	38-80	5.1-7.3	90-95	100-180	 	0 
Lupton	0-4	4.5-7.8	85-95	100-180		0
	4-80	4.5-7.8	80-95	100-180		0
Tawas	0-26	4.5-6.5	   75-90		   100-180	   0
	26-80	5.1-6.5	0.0-0.5	1.0-2.0		0
58:					 	
Dawson	0-10	3.0-4.4	85-95		100-180	0
	10-38	3.0-4.4	80-95		100-180	0
	38-80	3.0-6.5	0.0-0.5		0.2-7.0	0 
Greenwood		3.5-4.4			100-180	0
	65-80	3.5-4.4	80-95		100-180 	0 
Loxley	0-8	3.5-4.4	85-95		100-180	0
	8-80	3.5-4.4	80-95		100-180	0
59:					! 	! 
Chippeny	0-20	5.6-7.8	1	100-180		0
	20-28	'	0.0-0.5	2.0-24		10-30
	28-80				 	 
Nahma	0-11	'	1	100-180		0
	11-14	,	2.0-5.0	2.8-11		0
	14-17	,	1	2.8-11		0
		6.1-7.8		2.7-11		0
	19-24 24-80	1	0.0-0.5	2.6-11	 	10-30 

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity	Effective  cation-  exchange  capacity	Calcium  carbonate 
	In	рн	Pct	meq/100 g	meq/100 g	Pct
60: Histosols	0-91	   	     75-90		   	     0
į			į			į
Aquents	0-80				 	0 
61. Pits		   	   	   	   	   
62F: Udipsamments	0-80	   	0.5-1.0	   	   	     0
Udorthents	0-80				 	0
64B:					 	 
Kiva	0 - 3 3 - 6	5.1-6.0	2.0-5.0		4.0-14   1.0-6.0	0   0
	6-15	5.1-6.0	0.5-3.0	1.0-10		0
	15-23	5.1-6.5	0.5-3.0	1.0-3.0		0
	23-80	7.4-9.0	0.0-0.5	0.0-1.0	 	10-25 
64D:		İ	İ			
Kiva	0-3 3-6	5.1-6.0	2.0-5.0		4.0-14   1.0-6.0	0   0
	6-15	5.1-6.0	0.5-2.0	1.0-10		0
į	15-23	5.1-6.5	0.5-3.0	1.0-3.0		0
	23-80	7.4-9.0	0.0-0.5	0.0-1.0		10-25
65D:					 	 
Jeske, bedrock						
terrace	0-3 3-21	3.5-5.5	50-90	0.0-4.0	 	0   0
i	21-31	4.5-6.0				0
	31-80	4.5-6.0				0
Gongeau, bedrock					 	 
terrace	0 - 5	3.5-5.0	75-90			0
	5-7 7-18	4.5-6.0	10-30	0.0-1.0	20-60	0   0
	18-29	4.5-6.0				0
ļ	29-80	4.5-6.0				0
Deerton, bedrock		 	 	 		 
terrace	0-1	3.5-6.0	1			0
	1-9		0.5-2.0	•	1.0-8.0   4.0-16	0
	9-10 10-25	!	0.5-3.0		1.0-10	0   0
	25-39					0
	39-80				 	0 
65F:						
Jeske, bedrock	0 0					
terrace		3.5-5.5	0.0-0.5	0.0-4.0	 	0   0
i	21-31	:				0
	31-80	4.5-6.0			 	0
Gongeau, bedrock					! 	! 
terrace		3.5-5.0		ļ		0
	5-7 7-18	4.5-6.0		0.0-1.0	20-60	0   0
	18-29	4.5-6.0				0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil reaction	Organic   matter	!	1	  Calcium  carbonate   
ĺ	In	pH	Pct	meq/100 g	meq/100 g	Pct
65F:   Deerton, bedrock			1	1		 
terrace	0-1	3.5-6.0	50-90		 	l l 0
	1-9	3.5-6.0	0.5-2.0		1.0-8.0	0
İ	9-10	3.5-6.0	2.0-5.0	i	4.0-16	0
	10-25	3.5-6.0	0.5-3.0		1.0-10	0
	25-39					0
	39-80					0
66D:		 		 	 	 
Ruse, bedrock		i		i	 	İ
terrace	0-10	6.1-7.8	10-30	20-60		0
	10-13	6.1-7.8	2.0-5.0	5.0-20		10-30
	13-19	6.1-7.8				10-30
	19-80					
Ensign, bedrock		 		 	 	 
terrace	0-10	6.1-7.8	2.0-5.0	6.0-16	 	i I 0
	10-14	6.1-7.8	0.5-3.0	6.0-16		0
j	14-18	6.1-7.8	j			0
ļ	18-80					0
Nykanen, bedrock	0-4	4.5-5.5	2.0-5.0	 	   8.0-14	l l 0
cerrace	4-14	4.5-5.5	0.5-5.0		8.0-14	l 0
ľ	14-25					0
j	25-80					0
66F:						
Ruse, bedrock	0-10	   6.1-7.8	10-30	20-60	 	l l 0
	10-13	6.1-7.8	2.0-5.0	5.0-20	 	10-30
İ	13-19	6.1-7.8				10-30
İ	19-80					
Ensign, bedrock	0 10				İ	
terrace	0-10 10-14	6.1-7.8	2.0-5.0	6.0-16	 	0   0
 	14-18	6.1-7.8			 	0   0
ľ	18-80					0
j		į	İ	į	ĺ	j
Nykanen, bedrock				1		
terrace	0-4		2.0-5.0		8.0-14	0
	4-14 14-25	4.5-5.5	0.5-5.0		8.0-14	0   0
	25-80				 	0   0
ľ	25 00					
68.   Pits, quarry		<u> </u> 	<u> </u> 	<u> </u> 		<u> </u> 
69B:					 	 
Escanaba	0-1	5.1-6.0	50-90		 	   0
	1-3		2.0-5.0	1		0
ľ	3-6	•	0.5-2.0	•		0
İ	6-26	5.1-6.0	0.5-3.0	1.0-10		0
į	26-35		0.0-0.5			0
į	26-35 35-42 42-80	6.1-7.3	0.0-0.5   0.0-0.5   0.0-0.5	6.0-12	   	0   0   10-30

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity		Calcium  carbonate 
	In	pН	Pct	meq/100 g	meq/100 g	Pct
71A:					 	 
Evart	0-10	6.1-7.8	2.0-5.0	5.0-16	 	l   0
	10-18	6.1-7.8	2.0-5.0	4.0-12		0
	18-80	6.1-8.4	0.0-0.5	0.0-1.0		0
Sturgeon	0-6	4.5-6.5	2.0-5.0	5.0-15	 	   0
	6-16 16-80	4.5-6.5	0.5-1.0	3.0-8.0	 	0   0
	10-00	4.5-0.5				
72E:		!	!	!	!	
Deerton,						
dissected	0-1 1-9	3.5-6.0	50-90		   1.0-8.0	0
	9-10	3.5-6.0	2.0-5.0		4.0-8.0	0   0
	10-25	3.5-6.0	0.5-3.0		1.0-10	0
	25-39	3.3-0.0	0.5-5.0			0
	39-80					0
Tokiahok,					 	 
dissected	0-2	4.5-5.5	50-90	i	i	0
	2-11	4.5-5.5	0.5-2.0		1.0-7.0	0
	11-15	4.5-5.5	2.0-5.0		4.0-16	0
	15-24	4.5-5.5	0.5-3.0		1.0-12	0
	24-59	4.5-6.5	0.0-0.5	1.0-10		0
	59-80	5.6-6.5	0.0-0.5	3.0-9.0	 	0 
Trout Bay,						
dissected		5.1-6.0	75-90	100-180		0
	19-34 34-80				 	0   0
72F:					 	 
Deerton,				İ	! 	 
dissected	0-1	3.5-6.0	50-90		i	0
	1-9	3.5-6.0	0.5-2.0	j	1.0-8.0	0
	9-10	3.5-6.0	2.0-5.0	i	4.0-16	0
j	10-25	3.5-6.0	0.5-3.0		1.0-10	0
	25-39					0
	39-80				 	0 
Tokiahok,						
dissected		4.5-5.5	50-90			0
	2-11	1	'	'	1.0-7.0	0
	11-15 15-24		'	'	4.0-16   1.0-12	0   0
	24-59		0.0-0.5	'		0   0
	59-80		'	'		0
Trout Bay,					 	 
dissected	0-19	5.1-6.0	75-90	100-180	i	0
	19-34 34-80	1			 	0   0
	34-00					
76C:						
Garlic,						
dissected		3.5-5.6	'			0
	2-9		0.5-2.0	'	0.1-4.0	0
	9-11 11-20		'		0.1-4.0	0   0
	20-29	5.1-6.0		0.5-4.0	0.1-4.0	0   0
	29-80	5.1-6.0		'	 	0
		0.0			i I	

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic   matter	exchange	Effective  cation-  exchange  capacity	  Calcium  carbonate   
İ	In	pH	Pct	meq/100 g	meq/100 g	Pct
T.C.						
76C:   Blue Lake,			I I	 	 	 
dissected	0-2	4.5-5.5	50-90		 	l 0
	2-7	4.5-6.0	0.5-2.0		1.0-10	0
į	7-9	4.5-6.0	2.0-5.0		4.0-10	0
ĺ	9-27	4.5-6.0	0.5-3.0		1.0-9.0	0
!	27-80	4.5-6.5	0.0-0.5		1.0-6.0	0
Voelker,					 	 
dissected	0-1	4.5-5.5	50-90		 	l   0
	1-5	4.5-5.5	2.0-5.0		4.0-10	0
i	5-11	4.5-5.5	0.5-2.0		1.0-4.0	0
į	11-15	4.5-5.5	2.0-5.0		4.0-10	0
į	15-31	4.5-5.5	2.0-5.0		4.0-10	0
į	31-39	5.1-6.0	0.0-0.5	0.0-7.0	i	0
ļ.	39-80	5.1-6.0	0.0-0.5	0.8-0.0		0
76E:					 	 
Garlic,					! 	 
dissected	0-2	3.5-5.6	50-90			
į	2-9	3.5-5.5	0.5-2.0			0
į	9-11	3.5-5.5	2.0-5.0		i	0
ĺ	11-20	3.5-5.5	0.5-3.0			0
	20-29	5.1-6.0	0.0-0.5	0.5-4.0		0
ļ	29-80	5.1-6.0	0.0-0.5	0.5-4.0		0
Blue Lake,					 	 
dissected	0-2	4.5-5.5	50-90			0
į	2-7	4.5-6.0	0.5-2.0		1.0-10	0
į	7-9	4.5-6.0	2.0-5.0		4.0-10	0
ĺ	9-27	4.5-6.0	0.5-3.0		1.0-9.0	0
ļ	27-80	4.5-6.5	0.0-0.5		1.0-6.0	0
Voelker,					 	 
dissected	0-1	4.5-5.5	50-90			0
	1-5	4.5-5.5	2.0-5.0		4.0-10	0
į	5-11	4.5-5.5	0.5-2.0		1.0-4.0	0
į	11-15	4.5-5.5	2.0-5.0		4.0-10	0
	15-31	4.5-5.5	2.0-5.0		4.0-10	0
	31-39	5.1-6.0	0.0-0.5	0.0-7.0		0
	39-80	5.1-6.0	0.0-0.5	0.8-0.0		0
76F:					 	 
Garlic,		İ	İ	İ	İ	<u> </u>
dissected	0-2	3.5-5.6	50-90		i	0
į	2-9	3.5-5.5	0.5-2.0		i	0
ĺ	9-11	3.5-5.5	2.0-5.0			0
ĺ	11-20	3.5-5.5	0.5-3.0			0
į	20-29	5.1-6.0	0.0-0.5	0.5-4.0		0
	29-80	5.1-6.0	0.0-0.5	0.5-4.0		0
Blue Lake,					 	 
	0-2	4.5-5.5	50-90		 	0
dissected		,	1	1		!
dissected	2-7	4.5-6.0	0.5-2.0		1.0-10	0
dissected    	2-7 7-9	4.5-6.0	2.0-5.0	1	1.0-10   4.0-10	0   0
dissected      		1	2.0-5.0			!

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter	Cation-  exchange  capacity		Calcium  carbonate 
	In	pН	Pct	meq/100 g	meq/100 g	Pct
76F: Voelker,		   		   	   	   
dissected	0-1	4.5-5.5	50-90		l 	l   0
arbbeetea	1-5	4.5-5.5	2.0-5.0		4.0-10	0
	5-11	4.5-5.5	0.5-2.0		1.0-4.0	0
	11-15	4.5-5.5	2.0-5.0		4.0-10	0
	15-31	4.5-5.5	2.0-5.0		4.0-10	0
	31-39	5.1-6.0	0.0-0.5	0.0-7.0		0
	39-80	5.1-6.0	0.0-0.5	0.8-0.0		0
77B:						 
Garlic	0-2	3.5-5.6	50-90			0
	2-9	3.5-5.5	0.5-2.0	j	0.1-4.0	0
	9-11	3.5-5.5	2.0-5.0	i	0.1-4.0	0
j	11-20	3.5-5.5	0.5-3.0		0.1-4.0	0
	20-29	5.1-6.0	0.0-0.5	0.5-4.0		0
	29-80	5.1-6.0	0.0-0.5	0.5-4.0		0
Blue Lake	0-2	4.5-5.5	50-90		 	   0
	2-7	4.5-6.0	0.5-2.0	i	1.0-10	0
	7-9	4.5-6.0	2.0-5.0	j	4.0-10	0
	9-27	4.5-6.0	0.5-3.0		1.0-9.0	0
	27-80	4.5-6.5	0.0-0.5		1.0-6.0	0
Voelker	0-1	4.5-5.5	50-90		 	   0
	1-5	4.5-5.5	2.0-5.0	i	4.0-10	0
	5-11	4.5-5.5	0.5-2.0	i	1.0-4.0	0
	11-15	4.5-5.5	2.0-5.0		4.0-10	0
	15-31	4.5-5.5	2.0-5.0		4.0-10	0
	31-39 39-80	5.1-6.0	0.0-0.5	0.0-7.0	 	0
	39-80	5.1-6.0	0.0-0.5	0.0-8.0	<del></del> 	0 
77D:			į	į		
Garlic	0-2	3.5-5.6	1			0
	2-9	3.5-5.5	0.5-2.0		0.1-4.0	0
	9-11 11-20	3.5-5.5	2.0-5.0		0.1-4.0	0
	20-29	3.5-5.5	0.5-3.0	0.5-4.0	0.1-4.0	0   0
	29-80	5.1-6.0	0.0-0.5	0.5-4.0		0
Blue Lake	0-2 2-7	4.5-5.5	50-90		   1.0-10	0   0
	7-9	4.5-6.0	1	1	4.0-10	0   0
	9-27		0.5-3.0		1.0-9.0	0   0
	27-80	'	0.0-0.5	'	1.0-6.0	0
	0.1					
Voelker	0-1 1-5	4.5-5.5	50-90		   4.0-10	0   0
	5-11	'	0.5-2.0	'	1.0-4.0	0   0
		'	2.0-5.0	'	4.0-10	0
	15-31	'	2.0-5.0	'	4.0-10	0
	31-39	'	•	0.0-7.0		0
	39-80	'	0.0-0.5	'		0
77E:					 	 
Garlic	0-2	3.5-5.6	50-90			0
	2-9	3.5-5.5	•	i		0
	9-11	'	2.0-5.0	1		0
j	11-20	3.5-5.5	0.5-3.0	j		0
	20-29	5.1-6.0	0.0-0.5	0.5-4.0		0
	29-80		0.0-0.5	0.5-4.0		0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter 	exchange	Effective  cation-  exchange  capacity	Calcium  carbonate   
	In	pН	Pct	meq/100 g	meq/100 g	Pct
77E:					 	 
Blue Lake	0-2	4.5-5.5	50-90		l 	   0
Dide Dane	2-7	4.5-6.0	0.5-2.0		1.0-10	0
	7-9	4.5-6.0	2.0-5.0		4.0-10	0
	9-27	4.5-6.0	0.5-3.0		1.0-9.0	0
	27-80	4.5-6.5	0.0-0.5		1.0-6.0	0
Voelker	0-1	4.5-5.5	50-90			0
	1-5	4.5-5.5	2.0-5.0		4.0-10	0
	5-11	4.5-5.5	0.5-2.0		1.0-4.0	0
	11-15	4.5-5.5	2.0-5.0		4.0-10	0
	15-31	4.5-5.5	2.0-5.0		4.0-10	0
	31-39 39-80	5.1-6.0	0.0-0.5	0.0-7.0	 	0   0
88:					 	
Cathro	0-34	4.5-6.5	75-90	100-180	i	0
	34-80	5.6-8.4	0.0-0.5	2.0-12		10-30
Ensley	0-5	6.1-7.8	75-90	100-180	 	0
•	5-7	6.1-7.3	10-50	22-116		0
	7-19	6.6-7.8	0.5-1.0	1.0-14	i	0
	19-80	6.6-7.8	0.0-0.5	2.0-13		10-20
93:					 	
Tawas	0-26	4.5-6.5	75-90		100-180	0
	26-80	5.1-6.5	0.0-0.5	1.0-2.0	 	0 
Deford	0 - 4	4.5-6.0	75-90		75-135	0
	4-80	5.1-7.8	0.0-0.5		0.0-5.3	0
95B:				į	į	į
Liminga	0-1	3.5-5.0	50-90			0
	1-7	3.5-6.0	0.5-2.0		3.0-5.0	0
	7-9 9-22	3.5-6.0	2.0-5.0		4.0-9.0	0   0
	22-31	3.5-6.0	0.0-0.5		3.0-5.0	0
	31-80	3.5-6.5	0.0-0.5		0.2-4.0	0
104C:					 	 
Fence, dissected	0-3	3.5-6.0	2.0-5.0		3.0-16	0
	3-7	3.5-6.0	0.5-2.0		3.0-10	0
	7-11	3.5-6.0	2.0-5.0	8.0-16		0
	11-19	'	0.5-2.0	'		0
	19-42 42-80	1	'	'	 	0 0 - 3 0
109D:				 	 	 
Rousseau	0-1	3.5-6.0	50-90		 	0
	1-4	3.5-6.0	0.1-1.0		0.2-8.0	0
	4-20	3.5-6.5	0.5-3.0		1.0-12	0
	20-33	3.5-6.5	0.0-0.5		0.0-7.0	0
	33-66	3.5-6.5	'	'		0
	66-80	3.5-6.5	0.0-0.5	0.0-7.0	 	0
Dawson	0-10	3.0-4.4	'		100-180	0
	10-20	3.0-4.4			100-180	0
	20-38	3.0-4.4			100-180	0
	38-80	3.0-6.5	0.0-0.5		0.2-7.0	0
	1	I	1	I	I	I

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic matter	Cation-  exchange  capacity	cation- exchange	Calcium  carbonate 
	In		Pct	  mag/100 g	meq/100 g	Pct
	111	pH	PCL	meq/100 g	med/100 g	PCL
109F:					İ	
Rousseau	0-1	3.5-6.0	50-90			0
	1-4	3.5-6.0	0.1-1.0		0.2-8.0	0
	4-20	3.5-6.5	0.5-3.0		1.0-12	0
	20-33	3.5-6.5	0.0-0.5		0.0-7.0	0
	33-66	3.5-6.5	0.0-0.5	0.0-7.0		0
	66-80	3.5-6.5	0.0-0.5	0.0-7.0		0
_						
Dawson	0-10	3.0-4.4	1		100-180	0
	10-20	3.0-4.4	1		100-180	0
	20-38 38-80	3.0-4.4	80-95		100-180	0   0
	30-00	3.0-6.5	0.0-0.5		0.2-7.0	<b>U</b>
125B:		 	 	 	 	 
Stutts	0-1	3.5-5.0	50-90			0
	1-2	3.5-5.5	2.0-5.0		2.0-8.0	0
	2-7	3.5-5.5	0.5-2.0		2.0-6.0	0
	7-9	3.5-5.5	2.0-5.0		2.0-12	0
	9-13	4.5-6.0	0.5-3.0		1.8-6.2	0
	13-19	4.5-6.0	0.5-3.0		1.8-6.2	0
j	19-80	4.5-6.5	0.0-0.5		0.0-2.0	0
Kalkaska	0-1	3.6-5.0	50-90			0
	1-6	3.6-5.5	0.5-2.0		3.0-5.0	0
	6-8	3.6-5.5	2.0-5.0		1.0-3.0	0
	8-12	4.5-6.0	0.5-3.0		0.5-1.0	0
	12-23	4.5-6.0	0.0-0.5		0.1-0.5	0
	23-38	4.5-6.0	0.0-0.5		0.1-0.5	0
	38-80	4.5-6.5	0.0-0.5		0.1-0.5	0
125D:		l I	l I	l I	 	 
Stutts	0-1	3.5-5.0	50-90		l 	l <b>0</b>
bcaccs	1-2	3.5-5.5	2.0-5.0		2.0-8.0	0   0
	2-7	3.5-5.5	0.5-2.0		2.0-6.0	0
	7-9	3.5-5.5	2.0-5.0		2.0-12	0
	9-13	4.5-6.0	0.5-3.0		1.8-6.2	0
	13-19	4.5-6.0	0.5-3.0		1.8-6.2	0
j	19-80	4.5-6.5	0.0-0.5		0.0-2.0	0
Kalkaska	0-1	3.6-5.0	1			0
	1-6 6-8	3.6-5.5	0.5-2.0		3.0-5.0 1.0-3.0	0   0
			0.5-3.0	!	!	
			0.0-0.5		0.5-1.0 0.1-0.5	:
		,	0.0-0.5	,	0.1-0.5	
		,	0.0-0.5	,	0.1-0.5	
j		İ	İ	İ	İ	j
125E:						
Stutts	0-1	3.5-5.0	'			0
	1-2	1	2.0-5.0	1	2.0-8.0	!
	2-7	'	0.5-2.0	'	2.0-6.0	
	7-9	1	2.0-5.0	1	2.0-12	0
		'	0.5-3.0	'	1.8-6.2	
		'	0.5-3.0	:	1.8-6.2	
	T9-80	4.5-6.5	0.0-0.5		0.0-2.0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth 	Soil  reaction 	Organic   matter	exchange	Effective  cation-  exchange  capacity	Calcium  carbonate 
	l In	pH	Pct	meg/100 g	meg/100 g	Pct
125E:		İ	İ	İ	ĺ	İ
Kalkaska	0-1	3.6-5.0	50-90			0
	1-6	3.6-5.5	0.5-2.0		3.0-5.0	0
	6-8	3.6-5.5	2.0-5.0		1.0-3.0	0
	8-12	4.5-6.0	0.5-3.0		0.5-1.0	0
	12-23	4.5-6.0	0.0-0.5		0.1-0.5	0
	23-38 38-80	4.5-6.0	0.0-0.5		0.1-0.5	0 0
1250.		į	į	į	į	į
135B:   Munising,		1		1	l I	
calcareous		I I	1	l I	 	I I
substratum	   0-1	3.5-5.5	50-90		 	0
Subscia cum	1-3	4.5-6.0	0.5-2.0		3.0-12	0
	3-6	4.5-6.0	2.0-5.0		6.0-20	0
	6-23	4.5-6.0	0.5-3.0		3.0-14	0
i	23-38	5.1-6.0	0.0-0.5	1.0-4.0	i	0
İ	38-50	5.1-6.5	0.0-0.5	2.0-10		0
į	50-63	5.0-6.0	0.0-0.5	2.0-12	j	0
	63-80	7.4-8.4	0.0-0.5	1.0-6.0		10-30
Ensley	0-5	6.1-7.8	75-90	100-180		0
	5-7	6.1-7.3	10-50	22-116		0
	7-19	6.6-7.8	0.5-1.0	1.0-14		0
	19-80 	6.6-7.8	0.0-0.5	2.0-13		10-20
145C:  Munising,  dissected, very		i   	 	;   	   	 
stony	0-1	4.5-5.5	50-90	j		0
i	1-2	4.5-6.0	2.0-5.0	i	4.5-6.0	0
	2-10	4.5-6.0	0.5-2.0		1.0-8.0	0
	10-14	4.5-6.0	2.0-5.0		6.0-16	0
	14-22	4.5-6.0	0.5-3.0		3.0-12	0
	22-49	4.5-6.0	0.0-0.5		2.0-8.0	0
	49-63	4.5-6.0	0.0-0.5		6.0-21	0
	63-80	5.6-6.5	0.0-0.5	3.0-9.0	 	0
Yalmer,						į
dissected, very	   0-1	3.5-6.0	50-90	l 	 	0
scony	1-3	3.5-6.0	2.0-5.0		4.0-12	0
	3-8	3.5-6.0			1.0-6.0	!
	8-11	•	2.0-5.0	•	4.0-12	0
	11-24	3.5-6.0	•	'	1.0-8.0	0
į	24-40	3.5-6.0	0.0-0.5	j	2.0-8.0	0
	40-66	3.5-6.0	0.0-0.5		4.0-10	0
	66-80	5.6-6.5	0.0-0.5	4.0-12		0
146B:						
Munising, stony		4.5-5.5	•			0
	1-2		2.0-5.0		4.5-6.0	
	2-10		1	1	1.0-8.0	:
	10-14	1	2.0-5.0	1	6.0-16	0
	14-22   22-49		0.5-3.0	'	3.0-12	0 0
	49-63	4.5-6.0	•	'	6.0-21	0
	63-80		0.0-0.5	'		0
						İ

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter 	exchange	Effective  cation-  exchange  capacity	  Calcium  carbonate 
	In	pН	Pct	meq/100 g	meq/100 g	Pct
		!	!		!	
146B:						
Skanee, stony	0-2	3.5-5.5	50-90			0
	2-8	3.5-5.5	2.0-5.0		4.0-16   4.0-16	0
	8-14 14-31	3.5-6.0	2.0-5.0		2.0-8.0	0
	31-42	3.5-6.0	0.0-0.5	6.0-21	2.0-8.0	0   0
	42-80	4.5-6.0	0.0-0.5	3.0-9.0		0
 147A:					 	
Skanee, very		1	1	l l	 	 
stony	0-2	3.5-5.5	50-90		 	0
B COII y	2-8	3.5-5.5	2.0-5.0		4.0-16	0
	8-14	3.5-6.0	2.0-5.0		4.0-16	0
	14-31	3.5-6.0	0.0-0.5		2.0-8.0	0
	31-42	3.5-6.0	0.0-0.5	6.0-21		0
į	42-80	4.5-6.0	0.0-0.5	3.0-9.0	i	0
Gay, very stony	0-4	5.1-6.0	75-90		   100-180	   0
Gay, Very Scony	4-7	5.1-6.5	2.0-8.0		4.0-65	0
	7-11	5.1-6.5	0.5-2.0	2.0-10		0
	11-16	5.1-6.5	0.5-1.0	3.0-22	l	0
	16-80	5.6-7.3	0.0-0.5	3.0-8.0	 	0
148B:						
Shoepac	0-2	3.5-5.5	50-90			0
	2-6	3.5-6.0	0.5-2.0	1.0-8.0	0.6-6.0	0
	6-12	4.5-6.0	0.5-3.0	1.0-10	0.6-8.0	0
	12-23	3.5-5.5	0.5-3.0	1.0-10	0.6-8.0	0
	23-33	5.1-6.5	0.0-0.5	0.0-10	0.6-6.0	0
	33-53 53-80	5.6-7.3	0.0-0.5	2.0-10	1.0-8.0	0   0
	53-60	/.4-0.4	0.0-0.5	2.0-10	 	0
Ensley	0 - 5	6.1-7.8	75-90	100-180	i	0
	5-7	6.1-7.3	10-50	22-116		0
	7-19	6.6-7.8	0.5-1.0	1.0-14		0
	19-80	6.6-7.8	0.0-0.5	2.0-13	 	10-20
155A:						
Zeba, very stony	0-2	4.5-6.0	2.0-5.0		6.0-20	0
	2-5	4.5-6.0	0.5-2.0		1.0-10	0
	5-13	4.5-6.0	0.5-3.0	4.0-13		0
	13-33	4.5-6.5	0.0-0.5		4.0-10	0
	33-80				 	0 
Jacobsville,						
very stony	0-5	4.5-5.5	75-90	100-180		0
	5-9	4.5-6.0	0.5-2.0		3.0-12	0
	9-23	4.5-6.5	0.5-1.0		4.0-13	0
	23-36	1	0.0-0.5	1		0
	36-80				 	0
157B:					<u> </u>	
Reade	0 - 4	3.5-5.5	50-90	i	i	0
İ	4-7	3.5-5.5	0.5-2.0		10-30	0
	7 - 9	4.5-5.5	2.0-5.0		10-30	0
	9-15	4.5-6.5	0.5-3.0		10-30	0
	15-20	'	'	1		0
İ	20-28 28-80	1	0.0-0.5	2.0-10		0   0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name   	Depth	Soil  reaction 	Organic   matter 		Effective  cation-  exchange  capacity	Calcium  carbonate 
	In	pН	Pct	meq/100 g	meq/100 g	Pct
157B:						 
Nahma	0-11	6.1-7.3	75-90	100-180	 	0
	11-14	6.1-7.8	2.0-5.0	2.8-11		0
	14-17	6.1-7.8	2.0-5.0	2.8-11	 	0
i	17-19	6.1-7.8	0.5-1.0	2.7-11	 	0
	19-24	6.6-8.4	0.0-0.5	2.6-11	 	10-30
ļ	24-80					
158C:   Munising,		   	   	   	   	   
dissected,						
stony	0-1	4.5-5.5	50-90			0
	1-2	4.5-6.0	2.0-5.0		4.5-6.0	0
	2-10	4.5-6.0	0.5-2.0		1.0-8.0	0
	10-14	4.5-6.0	2.0-5.0		6.0-16	0
İ	14-22	4.5-6.0	0.5-3.0		3.0-12	0
j	22-49	4.5-6.0	0.0-0.5		2.0-8.0	0
İ	49-63	4.5-6.0	0.0-0.5	i	6.0-21	0
į	63-80	5.6-6.5	0.0-0.5	3.0-9.0		0
Abbaye, dissected,		   	   	   	   	   
stony	0-2	4.5-5.5	50-90			0
İ	2-4	4.5-6.0	2.0-5.0		4.0-16	0
İ	4-13	4.5-6.0	0.5-2.0		1.0-10	0
j	13-25	4.5-6.0	0.5-3.0	3.0-12		0
İ	25-32	4.5-6.0	0.0-0.5	4.0-10		0
į	32-80					0
160B:					 	 
Paquin	0-2	3.5-5.0	50-90			0
	2-12	3.5-5.5	0.5-2.0		3.0-5.0	0
	12-14	3.5-5.5	2.0-5.0		1.0-4.0	0
	14-17	3.5-5.5	1.0-5.0		1.0-2.0	0
	17-27	3.5-5.5	1.0-5.0		1.0-2.0	0
	27-34	4.5-6.0	0.2-1.0		1.0-2.0	0
İ	34-80	4.5-6.5	0.0-0.5	3.0-5.0		0
Finch	0-1	3.5-5.6	50-90			0
	1-11	3.5-6.0	0.5-2.0		0.0-4.0	0
	11-42	3.5-6.0	0.5-3.0		2.0-8.0	0
	42-80	5.1-6.5	0.0-0.5	0.0-1.0	 	0 
161B:						
Yellowdog, stony		4.5-5.5	1			0
	2-32		0.5-1.0	!	1.0-4.0	0
	32-80				 	0 
Buckroe, stony	0-2	4.5-5.5	50-90			0
	2-4	3.5-6.0	0.5-1.0		1.0-8.0	0
	4-15	3.5-6.0	0.5-1.0		1.0-4.0	0
	15-80					0
165B:						
Chocolay, very		ļ.	ļ.	!		
stony		3.5-5.5	1			0
	2-3	3.5-5.5	2.0-5.0	1	6.0-18	0
	3-8	3.5-5.5	0.5-2.0		2.0-10	0
   	3-8 8-14	!	1		2.0-10   6.0-18	0   0
     		1	2.0-5.0		1	!

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth 	Soil  reaction 	Organic   matter 	Cation- exchange capacity	'	  Calcium  carbonate   
	In	pН	Pct	meq/100 g	meq/100 g	Pct
165B: Waiska, very	   	   	   	   	   	   
stony	0-1	3.5-5.5	50-90			0
	1-4	3.5-6.0	0.5-2.0		1.0-6.0	0
	4-8   8-18	3.5-6.0	2.0-5.0		4.0-12   1.0-8.0	0
	18-80	5.1-6.0	0.0-0.5		0.0-3.0	0   0
166:					 	 
Skandia	0-4	3.5-4.4	85-95		100-180	0
	4-26	3.5-4.4	80-95		100-180	0
	26-31					0
	31-80 				 	0 
167:	0-4	3.5-4.4	95.05		     100-180	
Skandia, stony	0-4   4-26	3.5-4.4	85-95 80-95		100-180	0   0
	26-31	3.3-4.4				0
	31-80					0
Jacobsville,					 	 
stony	0-5	4.5-5.5	75-90	100-180	i	0
j	5-9	4.5-6.0	0.5-2.0		3.0-12	0
	9-23	4.5-6.5	0.5-1.0		4.0-13	0
	23-36	5.1-6.5	0.0-0.5	2.0-13		0
	36-80 					0
170B: Chocolay, very					   	   
stony	0-2	3.5-5.5	50-90			0
	2-3	3.5-5.5	2.0-5.0	j	6.0-18	0
	3-8	3.5-5.5	0.5-2.0		2.0-10	0
	8-14	3.5-5.5	2.0-5.0		6.0-18	0
	14-27	4.5-5.5	0.5-3.0			0
	27-80 					0 
171B:	İ	į	į	į	į	į
Paavola, very	   0-2	4.5-6.0	50-90		 	   0
stony	0-2	4.5-6.0	2.0-5.0		4.0-16	0
	6-15	4.5-6.0	2.0-5.0		4.0-10	0
	15-31	4.5-6.0	0.5-3.0	1.0-6.0		0
	31-59	4.5-6.0	0.0-0.5	i	4.0-12	0
	59-80	5.1-6.5	0.0-0.5	2.0-10		0
172D:	 					
Buckroe, very						
bouldery	0-2	1	1			0
	2-4	1	0.5-1.0	1	1.0-8.0	0
		1	0.5-1.0		1.0-4.0	1
	15-80 					0 
Rock outcrop.		İ	İ	İ	į I	į į
172F:						
Buckroe, very						
bouldery		4.5-5.5	•			0
	2-4	3.5-6.0	0.5-1.0		1.0-8.0	0
	4-15   15-80	1	0.5-1.0		1.0-4.0	0   0
	13-80					
Rock outcrop.		[	[	[	[	[

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity		Calcium  carbonate   
	In	pH	Pct	meq/100 g	meq/100 g	Pct
		[	[			
176B:						
Croswell	0-2	4.5-5.0	50-90			0
	2-6 6-15	3.5-6.0	0.1-1.0		0.2-7.0	0   0
	15-22	5.1-6.5	0.5-3.0	0.0-7.0	1.0-12	0   0
	22-80	5.1-6.5	0.0-0.5	0.0-7.0		0   0
	22 00	3.1 0.3	0.0 0.5	0.0 7.0	 	
Kinross	0-3	3.4-5.0	75-90		100-180	0
į	3-14	3.6-5.0	0.5-2.0	j	1.0-10	0
j	14-22	3.6-6.0	2.0-5.0		1.0-10	0
	22-35	3.6-6.0	0.5-3.0		1.0-10	0
	35-80	4.5-6.5	0.0-0.5		1.0-2.0	0
		!	!	!		
181E:						
Frohling,						 
dissected,	0-1	3.5-5.5	   50-90	1	 	   0
scony	1-2	4.5-5.5	2.0-5.0		6.0-18	0   0
	2-7	4.5-5.5	0.5-2.0		3.0-12	0   0
	7-9	4.5-5.5	2.0-5.0		6.0-20	l 0
	9-16	4.5-5.5	0.5-3.0	i	6.0-18	0
i	16-34	5.1-6.0	0.0-0.5	i	1.0-4.0	0
į	34-80	5.1-6.0	0.0-0.5	j	2.0-10	0
İ		İ	İ	İ	ĺ	
Tokiahok,						
dissected,						
stony	0-2	4.5-5.5	50-90			0
	2-11		0.5-2.0		1.0-7.0	0
	11-15	4.5-5.5	2.0-5.0		4.0-16	0
	15-24 24-59	4.5-5.5	0.5-3.0	1.0-10	1.0-12	0
	59-80	5.6-6.5	0.0-0.5	3.0-9.0	 	0   0
	33-80	3.0-0.3	0.0-0.3	3.0-3.0		<b>U</b>
185B:				1	 	 
McMaster	0-2	4.5-5.5	50-90	100-180	i	0
i	2-4	4.5-5.5	2.0-5.0		6.0-18	0
j	4-8	4.5-5.5	0.5-2.0		1.0-4.0	0
	8-11	4.5-6.0	2.0-5.0		4.0-20	0
	11-24	6.1-7.3	0.5-3.0	1.0-10		0
	24-39	7.4-8.4	0.0-0.5	0.0-4.0		10-25
	39-80	7.3-8.4	0.0-0.5	0.0-4.0		10-25
1000						 
186B:	0-1		   50-90		 	   0
Chatham, stony	1-6	5.1-6.0	2.0-5.0	4.0-14		0   0
	6-20	!	0.5-3.0		1.0-10	0   0
	20-39	5.1-6.0	:	1.0-10		0
	39-80	7.4-8.4	0.0-0.5	1.0-6.0		10-30
i		į	į	İ	İ	İ
186D:						
Chatham, stony	0-1	5.1-6.0	50-90			0
	1-6	1	2.0-5.0	4.0-14		0
	6-20	5.1-6.0	1		1.0-10	0
I	20-39	5.1-6.0	•	1.0-10		0
	39-80	7.4-8.4	0.0-0.5	1.0-6.0		10-30

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity		Calcium  carbonate   
	In	pH	Pct	meq/100 g	meq/100 g	Pct
187B:   Reade	0 - 4	3.5-5.5	50-90		 	   0
Reade	0-4 4-7	3.5-5.5	0.5-2.0		10-30	0   0
	4-7 7-9	4.5-5.5	2.0-5.0		10-30	0   0
	7-9 9-15	4.5-6.5	0.5-3.0		10-30	0   0
	15-20	6.6-7.8	0.0-0.5	2.0-10	10-30	0   0
	20-28	6.6-8.4	0.0-0.5	2.0-10	 	0   0
	28-80				 	0   0
	20-00				 	0
188B:				1	 	 
Eben, stony	0-6	6.6-7.8	2.0-5.0	8.0-20	! 	l 0
in its angle in the second	6-22	6.6-7.8	0.5-1.0	3.0-12	! 	l 0
	22-25	6.6-7.8	0.5-1.0	3.0-10	! 	l 0
	25-35	7.9-9.0	0.0-0.5	0.0-9.0	! 	10-25
	35-80	7.9-9.0	0.0-0.5	1.0-5.0	 	10-30
	55 55			200 000	! 	1
188D:					! 	 
Eben, stony	0-6	6.6-7.8	2.0-5.0	8.0-20	 	0
	6-22	6.6-7.8	0.5-1.0	3.0-12	 	0
	22-25	6.6-7.8	0.5-1.0	3.0-10	 	l 0
	25-35	7.9-9.0	0.0-0.5	0.0-9.0	 	10-25
	35-80	7.9-9.0	0.0-0.5	1.0-5.0	 	10-30
					İ	
188E:		i		i	İ	! 
Eben, stony	0-6	6.6-7.8	2.0-5.0	8.0-20	i	
	6-22	6.6-7.8	0.5-1.0	3.0-12	i	0
	22-25	6.6-7.8	0.5-1.0	3.0-10	i	0
	25-35	7.9-9.0	0.0-0.5	0.0-9.0	i	10-25
i	35-80	7.9-9.0	0.0-0.5	1.0-5.0		10-30
İ		İ	İ	İ	İ	
191B:		İ	İ	İ	İ	
Ruse	0 - 7	6.1-7.8	10-30	20-72		0
	7-11	6.1-8.4	2.0-5.0	4.0-22		10-30
	11-15	6.1-8.4	0.5-1.0	1.0-14		10-30
	15-80					
Ensign	0-1	6.1-7.8	50-90	65-96		0
	1-5	6.1-7.8	2.0-5.0	4.0-11		0
	5-8	6.1-7.8	0.5-3.0	3.8-11		0
	8-15	6.1-8.4	0.5-1.0	3.8-10		0
	15-80					0
		!				
197B:		!				
Shoepac	0-2	3.5-5.5	50-90	ļ		0
	2-6	3.5-6.0	1	1.0-8.0	0.6-6.0	0
	6-12	4.5-6.0	0.5-3.0	1.0-10	0.6-8.0	0
	12-23	3.5-5.5	'	1.0-10	0.6-8.0	0
	23-33	5.1-6.5	'	0.0-10	0.6-6.0	0
	33-53	5.6-7.3	0.0-0.5	2.0-10	1.0-8.0	0
	53-80	7.4-8.4	0.0-0.5	2.0-10		0
	0 0					
Trenary	0-2	4.5-6.5	2.0-5.0	4.0-16		0
	2-6	4.5-6.5	0.5-2.0	'		0
	6-12	4.5-6.0	'		2.0-16	0
	12-17	4.5-5.5	'	'	2.0-16	0
	17-26	5.1-6.5	'		1.0-10	0
	26-37	5.1-7.8	0.0-0.5	4.0-12		0
	37-80	6.6-8.4	0.0-0.5	2.0-9.0		10-30

Table 18.--Chemical Properties of the Soils--Continued

Map symbol	Depth		Organic	1	Effective	1
and soil name		reaction	matter		1	carbonate
				capacity		
		<u> </u>		<u> </u>	capacity	
	In	pН	Pct	meq/100 g	meq/100 g	Pct
198B:		 		 	 	 
Shoepac	0-2	3.5-5.5	50-90			0
	2-6	3.5-6.0	0.5-2.0	1.0-8.0	0.6-6.0	0
	6-12	4.5-6.0	0.5-3.0	1.0-10	0.6-8.0	0
	12-23	3.5-5.5	0.5-3.0	1.0-10	0.6-8.0	0
	23-33	5.1-6.5	0.0-0.5	0.0-10	0.6-6.0	0
	33-53	5.6-7.3	0.0-0.5	2.0-10	1.0-8.0	0
	53-80	7.4-8.4	0.0-0.5	2.0-10		0
Reade	0-4	3.5-5.5	50-90		 	0
	4-7	3.5-5.5	0.5-2.0		10-30	0
	7-9	4.5-5.5	2.0-5.0		10-30	0
	9-15	4.5-6.5	0.5-3.0		10-30	0
j	15-20	6.6-7.8	0.0-0.5	2.0-10		0
j	20-28	6.6-8.4	0.0-0.5	2.0-10		0
	28-80			ļ		0
200A:		 			 	 
Charlevoix	0-2	4.5-6.0	50-90			0
	2-5	3.5-6.0	0.5-2.0	1.0-7.0	0.6-5.0	0
	5-7	3.5-6.0	0.5-3.0	1.5-9.0	0.8-7.0	0
	7-12	3.5-6.0	0.5-3.0	1.0-9.0	0.6-7.0	0
	12-16	3.5-6.0	0.0-0.5	1.0-9.0	0.6-7.0	0
	16-27	5.1-7.3	0.0-0.5	4.0-13	2.0-10	0
	27-80	7.4-8.4	0.0-0.5	2.0-13		10-30
Ensley	   0-5	6.1-7.8	50-90	100-180	 	   0
	5-7	6.1-7.3	10-50	22-116		0
	7-19	6.6-7.8	0.5-1.0	1.0-14		0
	19-80	6.6-7.8	0.0-0.5	2.0-13		10-20
202B:					 	 
Sauxhead, very		İ		İ		
stony	0-1	3.5-5.5	50-90			0
	1-4	3.5-5.5	0.5-2.0		1.0-6.0	0
	4-14	3.5-5.5	0.5-1.0		1.0-5.0	0
	14-17					0
	17-80				 	0
206B:					 	 
Traunik	0-1	3.5-5.5	50-90			0
	1-4	4.5-6.0	0.5-2.0		3.0-12	0
	4-11	4.5-6.0	0.5-3.0		3.0-14	0
	11-24	5.1-6.0	0.5-3.0	1.0-8.0		0
	24-31	6.1-7.8	0.0-0.5	0.0-1.0		0
	31-80	6.6-7.8	0.0-0.5	0.0-1.0		10-25
206D:					 	 
Traunik	0-1	3.5-5.5	50-90			0
j	1-4	4.5-6.0	0.5-2.0		3.0-12	0
j	4-11	4.5-6.0	0.5-3.0		3.0-14	0
	11-24	5.1-6.0	0.5-3.0	1.0-8.0		0
			0.0-0.5	0.0-1.0		0
j	24-31	6.1-7.8	0.0-0.5	0.0-1.0	I	

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic matter	exchange	exchange	Calcium  carbonate
			<u> </u>		capacity	1
	In	pH	Pct	meq/100 g	meq/100 g	Pct
211B:		 	 	 	 	 
Munising	0-1	4.5-5.5	50-90	 	l 	l   0
	1-2	4.5-6.0	2.0-5.0		4.5-6.0	l 0
	2-10	4.5-6.0	0.5-2.0		1.0-8.0	0
	10-14	4.5-6.0	2.0-5.0	i	6.0-16	0
İ	14-22	4.5-6.0	0.5-3.0	j	3.0-12	0
j	22-49	4.5-6.0	0.0-0.5		2.0-8.0	0
	49-63	4.5-6.0	0.0-0.5		6.0-21	0
	63-80	5.6-6.5	0.0-0.5	3.0-9.0	 	0 
Abbaye	0-2	4.5-5.5	50-90			0
	2-4	4.5-6.0	2.0-5.0		4.0-16	0
	4-13	4.5-6.0	0.5-2.0		1.0-10	0
	13-25	4.5-6.0	0.5-3.0	3.0-12		0
	25-32 32-80	4.5-6.0	0.0-0.5	4.0-10	 	0   0
	32-80					0
214B:     Kalkaska	0-2	3.5-6.0	2.0-5.0		   2.0-11	   0
Kaikaska	2-6	4.5-6.0	0.1-1.0	l	1.0-5.0	0   0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	l 0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
į	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
Blue Lake	0-2	4.5-5.5	   50-90		 	   0
j	2-7	4.5-6.0	0.5-2.0		1.0-10	0
	7 - 9	4.5-6.0	2.0-5.0		4.0-10	0
	9-27	4.5-6.0	0.5-3.0		1.0-9.0	0
	27-80	4.5-6.5	0.0-0.5		1.0-6.0 	0 
214D:		į	į	į		į
Kalkaska	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0
	8-16 16-26	4.5-6.0	0.5-3.0		0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	0.2-4.0	0   0
Blue Lake	0-2	4.5-5.5	   50-90		 	   0
Dide Dane	2-7	4.5-6.0	0.5-2.0		1.0-10	l 0
	7-9	4.5-6.0	2.0-5.0		4.0-10	0
	9-27	4.5-6.0	0.5-3.0	i	1.0-9.0	0
į			0.0-0.5		1.0-6.0	0
   14E:					 	 
Kalkaska		1	2.0-5.0	1	2.0-11	0
	2-6		0.1-1.0		1.0-5.0	
			2.0-5.0		2.0-9.0	
			0.5-3.0		1.0-5.0	
	16-26 26-80		0.1-0.5	0.2-4.0	0.2-4.0	0   0
Blue Lake	0-2	4 5-5 5	50-90	 	 	     0
Prac nave	2-7	•	0.5-2.0		1.0-10	0
	- '	1.5-0.0	1 3.3-2.0	1	1 2.0-10	, ,
 	7 - 9	4.5-6.0	2.0-5.0		4.0-10	0
	7-9 9-27		2.0-5.0	1	4.0-10   1.0-9.0	0   0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter 	Cation- exchange capacity	1	Calcium  carbonate 
	In	pH	Pct	meq/100 g	meq/100 g	Pct
001-						
221B: Jeske	0-3	3.5-5.5	50-90		 	   0
Ueske	3-21	4.5-6.0	0.0-0.5	0.0-4.0	 	0
	21-31	4.5-6.0	0.0-0.5	0.0-4.0	 	0
	31-80	4.5-6.0				0
Au Train	0-2	3.5-5.0	50-90		100-180	0
	2-9	3.5-5.5	0.5-2.0		1.0-6.0	0
	9-14	3.5-5.5	2.0-5.0		4.0-10	0
	14-32 32-80				 	0
	32-80				 	0 
Gongeau	0-5	3.5-5.0	75-90			0
	5-7	4.5-6.0	10-30		20-60	0
	7-18	4.5-6.0	0.0-0.5	0.0-1.0		0
	18-29	4.5-6.0				0
	29-80	4.5-6.0				0
225B:					 	 
Cusino	0-2	3.5-5.0	50-90		100-180	0
	2-8	3.5-5.0	0.5-2.0		1.0-5.0	0
	8-10	3.5-5.5	2.0-5.0		4.0-15	0
	10-17	3.5-5.5	0.5-2.0		1.0-6.0	, 0
İ	17-80	4.5-6.0	0.0-0.5			0
225D:						
Cusino	0-2	3.5-5.0	50-90		   100-180	   0
Cusino	2-8	3.5-5.0	0.5-2.0		1.0-5.0	0
	8-10	3.5-5.5	2.0-5.0		4.0-15	0
	10-17	3.5-5.5	0.5-2.0		1.0-6.0	0
	17-80	4.5-6.0	0.0-0.5			0
00.5						
226B:	0 0	2 5 6 0	2 0 5 0			
Kalkaska	0-2 2-6	3.5-6.0	2.0-5.0		2.0-11	0
	2-6 6-8	4.5-6.0	2.0-5.0		2.0-9.0	0   0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
Cusino	0-2	3.5-5.0	50-90		100-180	0
	2-8	3.5-5.0	0.5-2.0		0.0-8.1	0
	8-10				0.4-8.5	0
	10-17 17-80	4.5-6.0	0.5-2.0	'	1.0-6.0	0   0
	17 00				! 	
226D:						
Kalkaska	0-2	'	2.0-5.0	'	2.0-11	0
	2-6	'	0.1-1.0	'	1.0-5.0	
	6-8	'	2.0-5.0	'	2.0-9.0	
	8-16	1	0.5-3.0	1	1.0-5.0	
	16-26 26-80		0.1-0.5		0.2-4.0	0   0
						İ
Cusino	0-2	3.5-5.0	'		100-180	1
	2-8	1	0.5-2.0	1	0.0-8.1	:
	8-10	'	'	'	0.4-8.5	0
	10-17 17-80	3.5-5.5   4.5-6.0	0.5-2.0		1.0-6.0	0   0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil	Organic	Cation-	!	  Calcium  carbonate
and boll name			11000001	capacity		
				capacity	capacity	
	In	pH	Pct	meg/100 g	meg/100 g	Pct
j		į -	İ	İ	İ	j
226E:					!	
Kalkaska	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6 6-8	4.5-6.0	0.1-1.0		1.0-5.0	0   0
	8-16		0.5-3.0		1.0-5.0	0   0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	l 0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
İ		į	İ	İ	j	j
Cusino	0-2	3.5-5.0	1		100-180	0
	2-8	3.5-5.0	1		0.0-8.1	0
	8-10	3.5-5.5	2.0-5.0		0.4-8.5	0
	10-17	3.5-5.5	0.5-2.0		1.0-6.0	0
	17-80	4.5-6.0	0.0-0.5		 	0 
226F:						
Kalkaska	0-2	3.5-6.0	2.0-5.0		2.0-11	0
j	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5			0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
Cusino	0-2	3.5-5.0	50-90		100-180	l   0
	2-8	3.5-5.0	0.5-2.0		0.0-8.1	0
	8-10	3.5-5.5	2.0-5.0		0.4-8.5	0
	10-17	3.5-5.5	0.5-2.0		1.0-6.0	0
	17-80	4.5-6.0	0.0-0.5			0
2273					l I	l I
227A: Halfaday	0-2	4.5-5.0	50-90		 	l l 0
	2-9	3.5-6.0	0.5-2.0		0.0-4.8	0
	9-10	3.5-6.0	2.0-5.0		0.1-4.0	0
	10-35	3.5-6.0	0.5-3.0		0.1-2.6	0
j	35-80	5.1-6.5	0.0-0.5	0.0-1.7	i	0
232B: Shelldrake	0 1		   F0 00			
Snelldrake	0-1 1-3	3.5-5.5	50-90 50-90		 	0   0
	3-4	3.5-6.0	2.0-5.0		4.0-10	0   0
	4-80	3.5-6.0	0.0-0.5		0.0-1.0	0
j		į	İ	İ	j	j
233B:					!	
Abbaye, very						
stony			50-90			0
	2-4		2.0-5.0	'	4.0-16	0
		•	0.5-2.0	,	1.0-10	0   0
		1	0.0-0.5	1		0   0
	32-80					0
		i	İ	İ	İ	
Zeba, very stony		1	2.0-5.0	1	6.0-20	0
		!	0.5-2.0		1.0-10	0
		•	0.5-3.0			0
			0.0-0.5		4.0-10	0
	33-80					0

Table 18.--Chemical Properties of the Soils--Continued

234A: Levasseur, very stonyBurt, very stony	0-1 1-3 3-8 8-13 13-80	pH     3.5-5.0   3.5-5.0   3.5-5.0   3.5-5.5	Pct	 	meq/100 g   	Pct 
Levasseur, very stony	1-3 3-8 8-13 13-80	3.5-5.0 3.5-5.0 3.5-5.5	50-90	   	   	 
stony	1-3 3-8 8-13 13-80	3.5-5.0 3.5-5.0 3.5-5.5	50-90	İ	İ	1
	1-3 3-8 8-13 13-80	3.5-5.0 3.5-5.0 3.5-5.5	50-90	1	I	
Burt, very stony	3-8 8-13 13-80	3.5-5.0	1			0
Burt, very stony	8-13 13-80	3.5-5.5	0.5-2.0			0
Burt, very stony	13-80		0.5-2.0		0.1-1.3	0
Burt, very stony	0-1				0.1-1.3	0   0
		4.5-6.0	50-90		 	   0
	1-5	4.5-6.5	10-20	20-60		0
	5-19	4.5-6.5	0.0-0.5	0.0-6.0		0
	19-80					0 
235B:						
Sauxhead, very	0 1	3.5-5.5			 	
stony	0-1 1-4	3.5-5.5	50-90		   1.0-6.0	0   0
	4-14	3.5-5.5	0.5-1.0		1.0-5.0	0
	14-17					0
	17-80	ļ				0
Burt, very stony	0-1	4.5-6.0	   50-90		 	   0
I	1-5	4.5-6.5	10-20	20-60		0
	5-19	4.5-6.5	0.0-0.5	0.0-6.0		0
	19-80				 	0 
236B:		į				
Waiska,					 	
extremely bouldery	0-1	3.5-5.5	50-90		 	   0
bouldery	1-4	3.5-6.0	0.5-2.0		1.0-6.0	0   0
	4-8	3.5-6.0	2.0-5.0		4.0-12	0
	8-18	3.5-6.0	0.5-3.0		1.0-8.0	0
	18-80	5.1-6.0	0.0-0.5		0.0-3.0	0
236D:					 	 
Waiska,						
extremely			!			
bouldery	0-1	3.5-5.5	50-90			0
	1-4 4-8	3.5-6.0	0.5-2.0		1.0-6.0   4.0-12	0   0
	8-18	3.5-6.0	0.5-3.0		1.0-8.0	0   0
	18-80	5.1-6.0			0.0-3.0	0
237B:		 		 	 	 
Chatham	0-1	5.1-6.0	50-90			0
	1-6	1	2.0-5.0	1		0
	6-20	1	0.5-3.0		1.0-10	0
	20-39	1	0.5-3.0	1		0
	39-80	7.4-8.4	0.0-0.5	1.0-6.0	 	10-30 
Davies	0-4	5.1-6.0	'			0
	4-11 11-80	5.1-6.5	0.5-1.0	1.0-6.0	 	0   0
239B:		 		 	 	 
Longrie	0-4	5.1-7.3	2.0-5.0	7.0-17	 	   0
	4-9	5.1-7.3	1	1		0
	9-11		2.0-5.0	'		0
	11-27 27-31	5.1-6.0	1	1	 	0   10-30
	31-80	6.6-8.4	0.0-0.5	4.0-14	 	10-30

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic   matter 	exchange	Effective  cation-  exchange  capacity	  Calcium  carbonate   
	In	pH	Pct	meq/100 g	meq/100 g	Pct
239B:				 	 	 
Shingleton	0-1	4.5-6.0	1.0-3.0		0.8-7.5	0
į	1-7	4.5-6.0	0.5-2.0		0.8-7.5	0
	7 - 8	4.5-6.0	2.0-5.0		3.0-12	0
	8-11	4.5-6.0	0.5-3.0		0.8-9.0	0
	11-80					0
240F:				 	 	 
Trout Bay	0-19	5.1-6.0	75-90	100-180		0
į	19-34	i	i			0
ļ	34-80					0
  Gongeau	0-5	3.5-5.0	   75-90		 	   0
J	5-7	4.5-6.0	10-30		20-60	0
į	7-18	4.5-6.0	0.0-0.5	0.0-1.0		0
į	18-29	4.5-6.0		i		0
ļ	29-80	4.5-6.0		ļ		0
  Shingleton	0-1	4.5-6.0	1.0-3.0		   0.8-7.5	   0
	1-7	4.5-6.0	0.5-2.0		0.8-7.5	0
į	7 - 8	4.5-6.0	2.0-5.0	i	3.0-12	0
ĺ	8-11	4.5-6.0	0.5-3.0		0.8-9.0	0
	11-80					0
Rock outcrop.					   	   
241:					 	
Cathro	0-46	4.5-6.5	75-90	100-180		0
ļ	46-80	5.6-6.5	0.0-0.5	2.0-12		0
  Gay	0 - 4	5.1-6.0	   75-90		   100-180	   0
i	4-7	5.1-6.5	2.0-8.0		4.0-65	0
	7-11	5.1-6.5	0.5-2.0	2.0-10		0
	11-16	5.1-6.5	0.5-1.0	3.0-22		0
	16-80	5.6-7.3	0.0-0.5	3.0-8.0		0
242B:					 	
Kalkaska,		İ	Ì	İ	ĺ	Ì
severely burned	0-2	3.5-6.0	2.0-5.0		2.0-11	0
ļ	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0
	8-16 16-26	4.5-6.0	0.5-3.0		1.0-5.0	0   0
	26-80	4.5-6.5	1	0.2-4.0	0.2-4.0	0
242D:		į	į	į		į
Kalkaska,				 	 	 
severely burned	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6	4.5-6.0	'		1.0-5.0	0
į	6-8	4.5-6.0	2.0-5.0	i	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	'	0.1-0.5		0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	 	0
242F:					! 	
Kalkaska,		İ	İ	į		
severely burned	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6	'	0.1-1.0		1.0-5.0	0
!	6-8	4.5-6.0	'		2.0-9.0	
	8-16	4.5-6.0	'		1.0-5.0	0
	16-26 26-80	4.5-6.5	'		0.2-4.0	0   0
 	20-00	0.5	0.1-0.3	0.2-4.0	 	0
		1	1	1	1	1

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	   Soil  reaction   	Organic   matter 	exchange	Effective  cation-  exchange  capacity	carbonate
İ	In	pH	Pct	meq/100 g	meq/100 g	Pct
043						
243:   Markey	0-3	4.5-6.0	   85-95	 	   100-180	   0
Markey	3-20	4.5-6.5	80-95	100-180		l 0
	20-80	4.5-7.8	0.0-0.5	0.0-0.5		0
245B:		 	 			 
Trout Bay	0-19	5.1-6.0	75-90	100-180		0
	19-34					0
	34-80				 	0 
Lupton	0 - 4	4.5-7.8	85-95	100-180		0
į	4-80	4.5-7.8	80-95	100-180		0
Gongeau	0-5	3.5-5.0	   75-90	 	 	   0
į	5-7	4.5-6.0	10-30	i	20-60	0
İ	7-18	4.5-6.0	0.0-0.5	0.0-1.0		0
	18-29	4.5-6.0				0
	29-80	4.5-6.0			 	0 
246B:		İ				
Garlic	0-2	3.5-5.6	50-90			0
	2-9	3.5-5.5	0.5-2.0		0.1-4.0	0
	9-11	3.5-5.5	2.0-5.0		0.1-4.0	0
	11-20 20-29	3.5-5.5	0.5-3.0	0.5-4.0	0.1-4.0	0   0
	29-80	5.1-6.0	0.0-0.5	0.5-4.0		0
246D:		 	 	 	 	 
Garlic	0-2	3.5-5.6	50-90		 	0
į	2-9	3.5-5.5	0.5-2.0	j	0.1-4.0	0
	9-11	3.5-5.5	2.0-5.0		0.1-4.0	0
	11-20	3.5-5.5	0.5-3.0		0.1-4.0	0
	20-29	5.1-6.0	0.0-0.5	0.5-4.0		0
	29-80	5.1-6.0	0.0-0.5	0.5-4.0	 	0 
246E:		į	į	į		į
Garlic	0-2	3.5-5.6	50-90			0
	2-9	3.5-5.5	0.5-2.0		0.1-4.0	0
	9-11 11-20	3.5-5.5	2.0-5.0	 	0.1-4.0	0   0
	20-29	5.1-6.0	0.0-0.5	0.5-4.0		l 0
	29-80	5.1-6.0	0.0-0.5	0.5-4.0		0
248B:		 	 	 	 	 
Escanaba	0-1	5.1-6.0	50-90	i		0
į	1-3	5.1-6.0	2.0-5.0	4.0-12		0
	3-6	5.1-6.0	0.5-2.0	4.0-12		0
	6-26	5.1-6.0	0.5-3.0	1.0-10		0
	26-35	6.1-7.3	0.0-0.5	3.0-9.0		0
	35-42 42-80	6.1-7.3	0.0-0.5	6.0-12 3.0-9.0	 	0   10-30
Cmarrl c = l-	0 1				 	
Greylock	0-1 1-6	5.1-6.0	50-90	   5.0-14	 	0   0
	6-7	5.1-6.0	0.5-2.0	2.0-8.0	 	0   0
	7-9	5.1-6.0	0.5-5.0	3.0-16	 	l 0
	9-19	5.1-6.0	0.5-5.0	3.0-16		0
i	19-26	6.1-7.3	0.0-0.5	4.0-12		0
į	26-34	6.1-7.3	0.0-0.5	4.0-12		0
	34-80	7.4-8.4	0.0-0.5	3.0-9.0	i	10-30

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction	Organic matter	!	  Effective  cation-	  Calcium  carbonate
		i i	i i		exchange capacity	   
	In	pH	Pct	meq/100 g	meq/100 g	Pct
248D:					İ	l I
Escanaba	0-1	5.1-6.0	50-90	 	l 	l   0
BSCanaba	1-3	5.1-6.0	2.0-5.0	4.0-12	 	0   0
	3-6	5.1-6.0	0.5-2.0	4.0-12	 	0
	6-26	5.1-6.0	0.5-3.0	1.0-10		0
	26-35	6.1-7.3	0.0-0.5	3.0-9.0		0
i	35-42	6.1-7.3	0.0-0.5	6.0-12		0
	42-80	6.6-7.8	0.0-0.5	3.0-9.0	 !	10-30
Greylock	0-1	5.1-6.0	50-90		 	0
	1-6	5.1-6.0	2.0-5.0	5.0-14		0
	6-7	5.1-6.0	0.5-2.0	2.0-8.0		0
	7 - 9	5.1-6.0	0.5-5.0	3.0-16		0
	9-19	5.1-6.0	0.5-5.0	3.0-16		0
	19-26	6.1-7.3	0.0-0.5	4.0-12		0
	26-34	6.1-7.3	0.0-0.5	4.0-12		0
	34-80	7.4-8.4	0.0-0.5	3.0-9.0	 	10-30 
248E:	0 1					
Escanaba	0-1	5.1-6.0	50-90			0
	1-3 3-6	5.1-6.0	2.0-5.0	4.0-12	 	0   0
	5-6 6-26	5.1-6.0	0.5-2.0	1.0-12	 	0   0
	26-35	6.1-7.3	0.0-0.5	3.0-9.0	 	0   0
	35-42	6.1-7.3	0.0-0.5	6.0-12	 	0   0
	42-80	6.6-7.8	0.0-0.5	3.0-9.0		10-30
Greylock	0-1	5.1-6.0	   50-90		 	   0
i	1-6	5.1-6.0	2.0-5.0	5.0-14		0
j	6-7	5.1-6.0	0.5-2.0	2.0-8.0		0
	7-9	5.1-6.0	0.5-5.0	3.0-16		0
	9-19	5.1-6.0	0.5-5.0	3.0-16		0
	19-26	6.1-7.3	0.0-0.5	4.0-12		0
	26-34	6.1-7.3	0.0-0.5	4.0-12		0
	34-80	7.4-8.4	0.0-0.5	3.0-9.0	 	10-30 
49B:				į		
Sauxhead	0-1	3.5-5.5	50-90			0
	1-4	3.5-5.5	0.5-2.0		1.0-6.0	0
	4-14 14-17	3.5-5.5	0.5-1.0	 	1.0-5.0	0
	17-80				 	0   0
Skandia	0-4	3.5-4.4	   85-95		   100-180	   0
	4-26	3.5-4.4	80-95		100-180	0
i	26-31			i		0
į	31-80					0
250B:		 	 			 
Chocolay,						
extremely stony	0-2	3.5-5.5	50-90			0
	2-3	3.5-5.5	2.0-5.0		6.0-18	0
I	3-8	3.5-5.5	0.5-2.0		2.0-10	0
I	8-14	3.5-5.5	2.0-5.0		6.0-18	0
	14-27	4.5-5.5	0.5-3.0			0
	27-80					0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol	Depth		Organic	1	Effective	
and soil name		reaction	matter			carbonate
				capacity		
					capacity	
	In	PH	Pct	meq/100 g	meq/100 g	Pct
250B:					 	 
Jacobsville,		İ	İ	ĺ		ĺ
extremely stony	0-5	4.5-5.5	75-90	100-180		0
	5-9	4.5-6.0	0.5-2.0		3.0-12	0
	9-23	4.5-6.5	0.5-1.0		4.0-13	0
	23-36	5.1-6.5	0.0-0.5	2.0-13		0
	36-80					0
251B:		 	 	 	 	 
Greylock	0-1	5.1-6.0	50-90		 	0
111111111111111111111111111111111111111	1-6	5.1-6.0	2.0-5.0	5.0-14		0
	6-7	5.1-6.0	0.5-2.0	2.0-8.0		0
i	7-9	5.1-6.0	0.5-5.0	3.0-16		0
i	9-19	5.1-6.0	0.5-5.0	3.0-16		0
i	19-26	6.1-7.3	0.0-0.5	4.0-12		0
i	26-34	6.1-7.3	0.0-0.5	4.0-12		0
į	34-80	7.4-8.4	0.0-0.5	3.0-9.0		10-30
251D:		 	 	 	 	l I
Greylock	0-1	5.1-6.0	50-90	 	l 	l l 0
Gley10ck	1-6	5.1-6.0	2.0-5.0	5.0-14	 	l 0
	6-7	5.1-6.0	0.5-2.0	2.0-8.0	 	0   0
	7-9	5.1-6.0	0.5-5.0	3.0-16	! 	l 0
	9-19	5.1-6.0	0.5-5.0	3.0-16	 	0
	19-26	6.1-7.3	0.0-0.5	4.0-12		0
	26-34	6.1-7.3	0.0-0.5	4.0-12		0
İ	34-80	7.4-8.4	0.0-0.5	3.0-9.0		10-30
252A:					 	  -
Finch	0-1	3.5-5.6	50-90		 	l 0
1 111011	1-11	3.5-6.0	0.5-2.0		0.0-4.0	l 0
	11-42	3.5-6.0	0.5-3.0		2.0-8.0	l 0
	42-80	5.1-6.5	0.0-0.5	0.0-1.0		0
Kinross	0-3 3-14	3.4-5.0	75-90		100-180	0
	3-14 14-22	3.6-5.0	0.5-2.0	 	1.0-10   1.0-10	0
	22-35	3.6-6.0	2.0-5.0	 	1.0-10	0   0
	35-80	4.5-6.5	0.0-0.5		1.0-10	0   0
i						
254C:		[	1			
Kalkaska,						
dissected	0-2		2.0-5.0		2.0-11	0
	2-6		0.1-1.0		1.0-5.0	:
	6-8		2.0-5.0		2.0-9.0	0
	8-16	•	0.5-3.0		1.0-5.0	0
	16-26 26-80	4.5-6.5	0.1-0.5	1	0.2-4.0	0   0
Blue Lake,		[	[			
dissected	0-2	1	50-90			0
	2-7		0.5-2.0		1.0-10	0
	7 - 9	4.5-6.0	2.0-5.0	:	4.0-10	0
	9-27 27-80	4.5-6.0	0.5-3.0	 	1.0-9.0   1.0-6.0	0   0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity	Effective  cation-  exchange  capacity	Calcium  carbonate   
	In	pН	Pct	meq/100 g	meq/100 g	Pct
2545						
254E: Kalkaska,		1	1	1	l I	 
dissected	0-2	3.5-6.0	2.0-5.0		2.0-11	l I 0
dibbecced	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0   0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
Blue Lake,					 	 
dissected	0-2	4.5-5.5	50-90			0
	2-7	4.5-6.0	0.5-2.0		1.0-10	0
	7 - 9	4.5-6.0	2.0-5.0		4.0-10	0
	9-27	4.5-6.0	0.5-3.0		1.0-9.0	0
	27-80	4.5-6.5	0.0-0.5		1.0-6.0 	0 
254F:		į				<u> </u>
Kalkaska,						
dissected	0-2 2-6	3.5-6.0	2.0-5.0		2.0-11	0   0
	2-6 6-8	4.5-6.0	0.1-1.0		1.0-5.0	0   0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0   0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0   0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
Blue Lake,		 			 	 
dissected	0-2	4.5-5.5	50-90			0
	2-7	4.5-6.0	0.5-2.0		1.0-10	0
	7 - 9	4.5-6.0	2.0-5.0		4.0-10	0
	9-27	4.5-6.0	0.5-3.0		1.0-9.0	0
	27-80	4.5-6.5	0.0-0.5		1.0-6.0	0 
255D:		İ				
Wallace	0-2	3.5-5.5	50-90			0
	2-10	3.5-5.5	0.5-2.0		2.0-4.0	0
	10-11	4.0-5.5	2.0-5.0		1.0-4.0	0
	11-21 21-26	4.5-5.5	2.0-5.0		1.0-4.0	0
	26-59	4.5-5.5	0.5-3.0	1.0-4.0	1.0-4.0	0   0
	59-80	4.5-6.5	0.0-0.5	1.0-4.0		0
256B:					 	 
Whitewash	0-3	4.5-6.0	50-90			0
	3-7			0.0-7.4	1	0
	7-9	•	1.0-3.0	,	2.1-8.1	0
	9-80	4.5-7.3	0.0-0.5	0.0-4.0		0
266A:		 			 	 
Spot	0-2	3.5-5.5	85-95		100-180	0
	2-8	1	0.1-1.0	1	0.2-8.0	0
			2.0-5.0	'	4.0-16	0
	10-18	1	0.5-3.0	1	1.0-12	0
	18-80	3.5-6.5	0.0-0.5		0.0-7.0	0 
Finch	0-1	3.5-5.6	,			0
	1-11	3.5-6.0	0.5-2.0	1	0.0-4.0	0
	11-42 42-80	•	0.5-3.0	0.0-1.0	2.0-8.0	0   0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	   Soil  reaction   	  Organic   matter   	!	  Effective  cation-  exchange  capacity	  Calcium  carbonate   
	In	рН	Pct	meq/100 g	meq/100 g	Pct
267A:					 	 
Finch	   0-1	3.5-5.6	50-90	 	l 	l l 0
	1-11	3.5-6.0	0.5-2.0		0.0-4.0	0
	11-42	3.5-6.0	0.5-3.0	j	2.0-8.0	0
	42-80	5.1-6.5	0.0-0.5	0.0-1.0		0
268C:		 	 	 	 	 
Munising,		i	i	İ	İ	İ
calcareous		į	İ	İ	j	İ
substratum,		İ	İ	ĺ	ĺ	ĺ
dissected	0-1	3.5-5.5	50-90			0
	1-3	4.5-6.0	0.5-2.0		3.0-12	0
	3-6	4.5-6.0	2.0-5.0		6.0-20	0
	6-23	4.5-6.0	0.5-3.0		3.0-14	0
	23-38	5.1-6.0	0.0-0.5	1.0-4.0		0
	38-50   50-63	5.1-6.5	0.0-0.5	2.0-10	 	0   0
	63-80	7.4-8.4	0.0-0.5	1.0-6.0	 	10-30
Frohling,		<u>.</u> !	<u> </u> 	 		
calcareous						
substratum, dissected	0 2		   E0 00	 	l I	l I 0
dissected	0-2 2-5	4.5-5.5	50-90 0.5-2.0	 	0.7-9.0	0   0
	5-24	4.5-5.5	0.5-3.0		0.4-2.2	0   0
	24-73	5.1-6.0	0.0-0.5	2.1-6.4		l 0
	73-80	7.4-8.4	0.0-0.5	4.1-6.4		10-30
Carleran						
Cookson, dissected	   0-3	4.5-6.0	50-90	100-180	l 	l l 0
dibbected	3-7	4.5-6.0	0.1-2.0	0.2-15	l	l 0
	7-11	4.5-6.0	2.0-5.0	4.0-21	 	l 0
	11-16	4.5-6.0	0.5-3.4	1.0-18		0
	16-21	5.6-7.3	0.0-1.0	0.0-13		0
	21-31	6.6-7.8	0.0-1.0	2.0-13	i	0-30
j	31-36	7.4-8.4	0.0-0.5	0.0-12		0-30
	36-80					
269E: Frohling,		   	   	   	   	   
calcareous		!	!			
substratum,						
dissected	0-2	4.5-5.5				0
			0.5-2.0		0.7-9.0	0   0
	5-24		0.5-3.0	2.1-6.4	0.4-2.2	0   0
	73-80	1	1	4.1-6.4	1	10-30
		į	į			
Garlic,					 	
dissected		1	50-90 0.5-2.0		 	0   0
	2-9   9-11	:	2.0-5.0		 	0
	11-20		0.5-3.0	1		0   0
	20-29	1	0.0-0.5	1		0
	29-80		0.0-0.5			0
		i	i	i	i i	i i

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity	!	Calcium  carbonate 
	In	pН	Pct	meq/100 g	meq/100 g	Pct
0.608						
269E: Cookson,		 	 	1	l I	 
dissected	0-3	4.5-6.0	50-90	100-180	l 	   0
dibbecced	3-7	4.5-6.0	0.1-2.0	0.2-15	l	0   0
	7-11	4.5-6.0	2.0-5.0	4.0-21		0
	11-16	4.5-6.0	0.5-3.4	1.0-18	i	0
	16-21	5.6-7.3	0.0-1.0	0.0-13		0
	21-31	6.6-7.8	0.0-1.0	2.0-13		0-30
	31-36	7.4-8.4	0.0-0.5	0.0-12		0-30
	36-80					
272C:		 	l I	 	 	 
Munising,		 	 	 	 	 
calcareous					! 	
substratum,		İ	İ	İ	İ	İ
dissected	0-1	3.5-5.5	50-90	i	i	0
	1-3	4.5-6.0	0.5-2.0		3.0-12	0
	3-6	4.5-6.0	2.0-5.0		6.0-20	0
	6-23	4.5-6.0	0.5-3.0		3.0-14	0
	23-38	5.1-6.0	0.0-0.5	1.0-4.0		0
	38-50	5.1-6.5	0.0-0.5	2.0-10		0
	50-63 63-80	5.0-6.0	0.0-0.5	1.0-6.0	 	0   10-30
	03-00	/.4-0.4	0.0-0.5	1.0-6.0	 	10-30
Yalmer, calcareous substratum,		     	   	   	     	     
dissected	0-1	3.5-5.5	50-90			0
	1-2	3.5-5.5	2.0-5.0		4.0-18	0
j	2-5	3.5-5.5	0.5-2.0	i	1.0-8.0	0
	5-16	4.5-6.0	2.0-5.0		4.0-16	0
	16-28	4.5-6.0	0.5-3.0	1.0-6.0		0
	28-36	5.1-6.5	0.0-0.5	1.0-5.0		0
	36-62	5.1-6.5	0.0-0.5	2.0-10		0
	62-80	7.4-8.4	0.0-0.5	1.0-6.0		10-30
Frohling,					 	
calcareous						
substratum,					!	
dissected	0-2	4.5-5.5	50-90			0
	2-5 5-24	4.5-5.5	0.5-2.0		0.7-9.0	0   0
		!	!	2.1-6.4	!	0   0
			,	4.1-6.4	!	10-30
			İ		İ	į
275B:						
Munising, calcareous		 	 	 	l I	 
substratum	0-1	3.5-5.5	50-90		 	l   0
	1-3	'	0.5-2.0	1	3.0-12	0
			2.0-5.0	,	6.0-20	0
j		4.5-6.0	0.5-3.0		3.0-14	0
İ	23-38	5.1-6.0	0.0-0.5	1.0-4.0	i	0
		'	0.0-0.5	,		0
	50-63	1	0.0-0.5	1		0
	63-80	7.4-8.4	0.0-0.5	1.0-6.0		10-30

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name   	Depth	Soil  reaction 	Organic   matter 	exchange	Effective  cation-  exchange  capacity	Calcium  carbonate 
	In	pН	Pct	meq/100 g	meq/100 g	Pct
275B:					l I	l I
Cookson	0-3	4.5-6.0	50-90	100-180	 	l   0
COORDON	3-7	4.5-6.0	0.1-2.0	0.2-15	 	l 0
i	7-11	4.5-6.0	2.0-5.0	4.0-21		0
i	11-16	4.5-6.0	0.5-3.4	1.0-18		0
į	16-21	5.6-7.3	0.0-1.0	0.0-13	i	0
į	21-31	6.6-7.8	0.0-1.0	2.0-13		0-30
	31-36	7.4-8.4	0.0-0.5	0.0-12		0-30
	36-80					
281E:					 	 
Mongo, dissected	0-1	4.5-5.5	50-90			0
	1-6	4.5-5.5	2.0-5.0		6.0-16	0
	6-22	4.5-5.5	0.0-0.5		3.0-32	0
	22-38	6.1-7.3	0.0-0.5	16-48		0
	38-80	7.4-8.4	0.0-0.5	3.0-30	 	10-30
282B:						
Furlong	0-1	4.0-5.5	50-90			0
	1-2	4.0-5.5	2.0-5.0		4.0-13	0
ļ	2-5	4.0-5.5	0.5-2.0		0.0-8.0	0
	5-7	4.0-5.5	2.0-5.0		4.0-16	0
ļ	7-19	4.0-5.5	0.5-3.0		1.0-12	0
ļ	19-22	6.6-8.0	0.0-0.5	0.0-4.0		0
	22-80				 	0 
Shingleton	0-1	4.5-6.0	1.0-3.0		0.8-7.5	0
ļ	1-7	4.5-6.0	0.5-2.0		0.8-7.5	0
ļ	7-8	4.5-6.0	2.0-5.0		3.0-12	0
 	8-11 11-80	4.5-6.0	0.5-3.0		0.8-9.0	0   0
0005		į	į	į	į	į
282D:   Furlong	0-1	4.0-5.5	50-90		 	   0
ruiiong	1-2	4.0-5.5	2.0-5.0		4.0-13	0   0
ļ	2-5	4.0-5.5	0.5-2.0		0.0-8.0	0
i I	5-7	4.0-5.5	2.0-5.0		4.0-16	0
i	7-19	4.0-5.5	0.5-3.0		1.0-12	0
i	19-22	6.6-8.0	0.0-0.5	0.0-4.0		0
į	22-80					0
  Shingleton	0-1	4.5-6.0	1.0-3.0		   0.8-7.5	   0
i	1-7	4.5-6.0	0.5-2.0		0.8-7.5	0
į	7-8		2.0-5.0	:	3.0-12	0
į	8-11	4.5-6.0	0.5-3.0		0.8-9.0	0
į	11-80					0
284B:					 	 
Steuben	0-2	4.5-6.0	50-90	i	i	0
ĺ	2-8	4.5-6.0	0.5-2.0		7.0-19	0
	8-16	4.5-6.0	2.0-5.0		7.0-19	0
	16-21	4.5-6.0	0.5-3.0		7.0-19	0
	21-40	4.5-6.0	0.0-0.5		2.0-8.0	0
	40-45	5.1-6.0	0.0-0.5	1.0-4.0		0
ļ	45-80	5.1-6.5	0.0-0.5	0.0-1.0		0
Blue Lake	0-2	4.5-5.5	50-90			0
	2-7	4.5-6.0	0.5-2.0		1.0-10	0
	7 - 9	4.5-6.0	2.0-5.0		4.0-10	0
I	9-27	4.5-6.0	0.5-3.0		1.0-9.0	0
'	27-80		0.0-0.5		1.0-6.0	

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity		Calcium  carbonat
	In	pH	Pct	meq/100 g	meq/100 g	Pct
284B:	0.0					
Kalkaska	0-2 2-6	1	2.0-5.0		2.0-11	0
	6-8	4.5-6.0	0.1-1.0		1.0-5.0	0
	8-16	4.5-6.0	2.0-5.0		2.0-9.0 1.0-5.0	0   0
	16-26	4.5-6.5			0.2-4.0	0   0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	0.2-4.0	0   0
	20 00				! 	
284D:			İ	Ì	ĺ	
Steuben	0-2	4.5-6.0	50-90			0
	2-8	4.5-6.0	0.5-2.0		7.0-19	0
	8-16	4.5-6.0	2.0-5.0		7.0-19	0
	16-21	4.5-6.0	0.5-3.0		7.0-19	0
	21-40	4.5-6.0	0.0-0.5		2.0-8.0	0
	40-45	5.1-6.0	0.0-0.5	1.0-4.0		0
	45-80	5.1-6.5	0.0-0.5	0.0-1.0		0
Blue Lake	0-2	4.5-5.5	50-90		 	0
j	2-7	4.5-6.0	0.5-2.0		1.0-10	0
j	7-9	4.5-6.0	2.0-5.0		4.0-10	0
j	9-27	4.5-6.0	0.5-3.0		1.0-9.0	0
	27-80	4.5-6.5	0.0-0.5		1.0-6.0	0
 	0-2	3 5 6 0	2.0-5.0		   2.0-11	   0
Kaikaska	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	l 0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
284E: Steuben	0-2	4.5-6.0	   50-90		 	l I 0
becaben	2-8	4.5-6.0	0.5-2.0		   7.0-19	0
	8-16	4.5-6.0	2.0-5.0		7.0-19	0
	16-21	4.5-6.0	0.5-3.0	i	7.0-19	0
	21-40	4.5-6.0	0.0-0.5		2.0-8.0	0
	40-45	5.1-6.0	0.0-0.5	1.0-4.0		0
i	45-80	5.1-6.5	0.0-0.5	0.0-1.0		0
Blue Lake	0.0	4.5-5.5			 	
Biue Lake	0-2 2-7	4.5-5.5	50-90		1.0-10	0
	7-9	4.5-6.0	2.0-5.0		4.0-10	0   0
		1	0.5-3.0	1		
		'	0.0-0.5	'	1.0-9.0   1.0-6.0	
į		İ	į	İ	İ	
Kalkaska	0-2		2.0-5.0		2.0-11	0
	2-6		0.1-1.0		1.0-5.0	•
		1	2.0-5.0	1	2.0-9.0	•
			0.5-3.0	,	1.0-5.0	
			0.1-0.5	0.2-4.0	0.2-4.0	0   0
					· ·	
285B:						
Halfaday			50-90			0
	2-9	1	0.5-2.0	1	0.0-4.8	•
		'	2.0-5.0	'	0.1-4.0	
			0.5-3.0	,	0.1-2.6	
	35-80	5.1-6.5	0.0-0.5	0.0-1.7		0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name   	Depth	Soil  reaction 	Organic   matter 		!	Calcium  carbonate 
İ	In	рН	Pct	meq/100 g	meq/100 g	Pct
285B:   Kinross	0-3	3.4-5.0	   75-90	 	   100-180	   0
KIIIIOSS	3-14	3.6-5.0	0.5-2.0		1.0-10	0   0
	14-22	3.6-6.0	2.0-5.0		1.0-10	l 0
i	22-35	3.6-6.0	0.5-3.0		1.0-10	0
į	35-80	4.5-6.5	0.0-0.5		1.0-2.0	0
286B:		 		 	 	 
Greylock	0-1	5.1-6.0	50-90			0
1	1-6	5.1-6.0	2.0-5.0	5.0-14		0
1	6-7	5.1-6.0	0.5-2.0	2.0-8.0		0
ļ	7 - 9	5.1-6.0	0.5-5.0	3.0-16		0
!	9-19	5.1-6.0	0.5-5.0	3.0-16		0
	19-26	6.1-7.3	0.0-0.5	4.0-12		0
	26-34 34-80	6.1-7.3	0.0-0.5	4.0-12	 	0   10-30
	31 00					10 30
Cookson	0-3	4.5-6.0	50-90	100-180		0
	3-7	4.5-6.0	0.1-2.0	0.2-15		0
	7-11	4.5-6.0	2.0-5.0	4.0-21		0
	11-16	4.5-6.0	0.5-3.4	1.0-18		0
l I	16-21 21-31	5.6-7.3	0.0-1.0	0.0-13	 	0   0-30
	31-36	7.4-8.4	0.0-1.0	0.0-12	 	0-30
	36-80					
287B:					 	 
McMaster	0-2	4.5-5.5	50-90	100-180		0
į	2-4	4.5-5.5	2.0-5.0		6.0-18	0
1	4-8	4.5-5.5	0.5-2.0		1.0-4.0	0
	8-11	4.5-6.0	2.0-5.0		4.0-20	0
ļ	11-24	6.1-7.3	0.5-3.0	1.0-10		0
!	24-39	7.4-8.4	0.0-0.5	0.0-4.0		10-25
	39-80	7.3-8.4	0.0-0.5	0.0-4.0	 	10-25 
Davies	0 - 4	5.1-6.0	75-90			0
	4-11	5.1-6.5	0.5-1.0	1.0-6.0		0
	11-80	5.6-7.3	0.0-0.5	0.0-1.0	 	0 
290A:						
Namur, very	0 0					
stony	0-3	6.1-7.8	2.0-5.0			0
	3-6 6-80		0.5-1.0	3.0-10	 	0   0
P	0. 17		10.20			
Ruse, very stony	0-7 7-11	'	10-30		 	0   10-30
	11-15	'	0.5-1.0	•	 	10-30
	15-80					
292B:		 		 	 	 
Mashek, sandy		 		 	 	 
substratum	0-6	4.5-6.0	2.0-5.0		   4.0-10	   0
		'	0.5-3.0		1.0-10	0   0
				1.0-8.0		0
		1	1	1	1	!
1	38-63	6.6-8.4	0.0-0.5	4.0-8.0		0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter	Cation-  exchange  capacity		Calcium  carbonate 
	In	рН	Pct	meq/100 g	meq/100 g	Pct
296D:					 	 
Islandlake	0-1	3.5-6.0	50-90		i	0
	1-2	3.5-6.0	1.0-3.0		1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0		0.8-6.0	0
	8-9 9-41	4.5-6.0	2.0-5.0		3.0-10 0.7-6.7	0   0
	41-80	5.1-6.5	0.1-0.5		0.2-7.0	0
McMillan	0-1	3.5-5.0	50-90		 	   0
	1-4	3.5-5.0	2.0-5.0		1.0-4.0	0
į	4-6	3.5-5.0	0.5-2.0	j	1.0-2.0	0
İ	6-9	3.5-5.0	2.0-5.0		1.0-4.0	0
	9-16	3.5-5.0	0.5-3.0		1.0-4.0	0
	16-22	3.5-5.0	0.5-3.0		1.0-2.0	0
	22-32	3.5-5.5	0.0-0.5		1.0-2.0	0
	32-80	3.5-5.5	0.0-0.5		1.0-2.0 	0 
296E: Islandlake	0-1	3.5-6.0	50-90		 	   0
ISIANGIAKE	1-2	3.5-6.0	1.0-3.0		1.5-9.0	0   0
	2-8	3.5-6.0	0.5-2.0		0.8-6.0	0
	8-9	4.5-6.0	2.0-5.0	i	3.0-10	0
į	9-41	4.5-6.0	0.5-3.0	j	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5		0.2-7.0	0
McMillan	0-1	3.5-5.0	50-90			0
	1-4	3.5-5.0	2.0-5.0		1.0-4.0	0
	4-6	3.5-5.0	0.5-2.0		1.0-2.0	0
	6-9 9-16	3.5-5.0	2.0-5.0		1.0-4.0	0   0
	16-22	3.5-5.0	0.5-3.0		1.0-4.0	0   0
	22-32	3.5-5.5	0.0-0.5		1.0-2.0	0
	32-80	3.5-5.5	0.0-0.5		1.0-2.0	0
297B:					 	 
Rubicon,						
severely burned	0-3	4.5-6.0	0.1-1.0		0.2-5.0	0
	3-28	4.5-6.0	0.5-3.0	1.0-9.0		0
	28-36 36-80	4.5-6.5	0.1-0.5	0.2-4.0	 	0   0
	30-80	4.5-0.5		0.2-4.0		
297D: Rubicon,						
severely burned	0-3	4.5-6.0	0.1-1.0		0.2-5.0	l   0
		1	0.5-3.0	'		0
į	28-36	4.5-6.5	0.1-0.5	0.2-4.0	i	0
	36-80	4.5-6.5	0.1-0.5	0.2-4.0		0
298B:					! 	 
Wurtsmith		3.5-6.0				0
	1-4	3.5-6.0	1		0.0-2.0	0
	4-24 24-80	3.5-6.0	0.5-1.0		0.0-1.0	0   0
Deford	0-4	4.5-6.0	75-90	i 	75 135	
Deford	4-80	5.1-7.8	0.0-0.5		75-135 0.0-5.3	0   0
299F:					 	 
Shelldrake	0-1	3.5-5.5	50-90		 	0
į	1-3	3.5-5.5	50-90		i	0
		1	1	1		
	3-4 4-80	3.5-6.0	0.0-0.5		4.0-10   0.0-1.0	0   0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic   matter 		Effective  cation-  exchange  capacity	  Calcium  carbonate 
	In	pH	Pct	  meq/100 g	meq/100 g	Pct
į		į	į			į
300F:   Shelldrake	0-1	3.5-5.5	   50-90		 	   0
bileliulake	1-3	3.5-5.5	50-90		l	0
	3-4	3.5-6.0	2.0-5.0		4.0-10	0
Ï	4-80	3.5-6.0	0.0-0.5		0.0-1.0	0
Dune land.		 	 	 	 	 
301F:		 	 	 	 	 
Cookson,		i	İ	i	İ	
dissected	0-3	4.5-6.0	50-90	100-180	i	0
į	3-7	4.5-6.0	0.1-2.0	0.2-15	i	0
İ	7-11	4.5-6.0	2.0-5.0	4.0-21	i	0
i	11-16	4.5-6.0	0.5-3.4	1.0-18	i	0
i	16-21	5.6-7.3	0.0-1.0	0.0-13	i	0
i	21-31	6.6-7.8	0.0-1.0	2.0-13		0-30
l I	31-36	7.4-8.4	0.0-0.5	0.0-12	 	0-30
Ï	36-80					
Nykanen,					 	 
dissected	0 - 4	4.5-5.5	2.0-5.0		8.0-14	l   0
aissectea		1	1	!	8.0-14	!
	4-14	4.5-5.5	0.5-5.0			0
I	14-25 25-80				 	0   0
	23-80					0
302B:		į		į	İ	İ
Dillingham	0-1	3.5-5.0	50-90		80-170	0
	1-8	3.5-5.0	0.5-2.0		0.0-1.0	0
	8-11	3.5-5.0	2.0-5.0		0.0-1.0	0
	11-21	3.5-5.0	0.5-3.0		0.0-1.0	0
	21-31	3.5-5.5	0.0-0.5		0.0-1.0	0
	31-80	3.5-5.5	0.0-0.5		0.0-0.5	0
  Kalkaska	0-2	3.5-6.0	2.0-5.0		   2.0-11	   0
	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
i	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0
i	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
i	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
İ	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
302D:			 		 	 
Dillingham	0-1	3.5-5.0	50-90		 	l   0
	1-8	3.5-5.0			0.0-1.0	0
i		3.5-5.5			0.0-1.0	0
i	11-21		0.5-3.0		0.0-1.0	0
l I	21-31		0.0-0.5		0.0-1.0	0
	31-80	3.5-5.9	0.0-0.5		0.0-0.5	0
T-111-	0.0					
Kalkaska	0-2		2.0-5.0		2.0-11	0
	2-6		0.1-1.0		1.0-5.0	0
	6-8	4.5-6.0	'		2.0-9.0	0
		4.5-6.0			1.0-5.0	0
	16-26 26-80	4.5-6.5	0.1-0.5	0.2-4.0	0.2-4.0	0   0
	_, ,		 		<u> </u>	
302E:						
Dillingham	0-1	3.5-5.0	50-90			0
	1-8		0.5-2.0		0.0-1.0	0
	8-11		'		0.0-1.0	0
1	11-21	3.5-5.5	0.5-3.0		0.0-1.0	0
I			'	:	:	:
	21-31 31-80	3.5-5.5	0.0-0.5		0.0-1.0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth   	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity	'	Calcium  carbonate   
	In	pН	Pct	meq/100 g	meq/100 g	Pct
			ļ			
302E:						
Kalkaska	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6-8   8-16	4.5-6.0	0.5-3.0		1.0-5.0	0   0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0   0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0	0.2-4.0	0   0
	20 00				 	
302F:	İ	İ	İ	İ	! 	İ
Dillingham	0-1	3.5-5.0	50-90	i		0
-	1-8	3.5-5.0	0.5-2.0	j	0.0-1.0	0
	8-11	3.5-5.5	2.0-5.0	j	0.0-1.0	0
	11-21	3.5-5.5	0.5-3.0	j	0.0-1.0	0
	21-31	3.5-5.5	0.0-0.5	i	0.0-1.0	0
	31-80	3.5-5.9	0.0-0.5	i	0.0-0.5	0
Kalkaska	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
303B:						
Kiva	0-3	5.1-6.0	2.0-5.0		4.0-14	0
	3-6	5.1-6.0	0.5-2.0		1.0-6.0	0
	6-15	5.1-6.0	0.5-3.0	1.0-10		0
	15-23	5.1-6.5	0.5-3.0	1.0-3.0		0
	23-80	7.4-9.0	0.0-0.5	0.0-1.0		10-25
Trenary	   0-2	4.5-6.5	2.0-5.0	4.0-16	l 	l   0
irenary	2-6	4.5-6.5	0.5-2.0	1.0-12		0   0
	6-12	4.5-6.0	2.0-5.0		2.0-16	0
	12-17	4.5-5.5	0.5-3.0		2.0-16	0
	17-26	5.1-6.5	0.5-2.0	i	1.0-10	0
	26-37	5.1-7.8	0.0-0.5	4.0-12		0
	37-80	6.6-8.4	0.0-0.5	2.0-9.0		10-30
	İ	İ	İ	İ	İ	j
303D:		İ	İ	İ		İ
Kiva	0-3	5.1-6.0	2.0-5.0		4.0-14	0
	3-6	5.1-6.0	0.5-2.0		1.0-6.0	0
	6-15	5.1-6.0	0.5-3.0	1.0-10		0
		•	0.5-3.0	•		0
	23-80	7.4-9.0	0.0-0.5	0.0-1.0		10-25
Trenary			2.0-5.0	'		0
	2-6		0.5-2.0	'		0
		1	2.0-5.0	1	2.0-16	0
			0.5-3.0		2.0-16	0
		1	0.5-2.0	1	1.0-10 	0   0
				2.0-9.0	I	0   10-30
	3/-80 	0.0-8.4	0.0-0.5	2.0-9.0	 	TO-30
303E:	i I				! 	! 
Kiva	0-3	5.1-6.0	2.0-5.0		4.0-14	l   0
· <del></del>	3-6		0.5-2.0	'	1.0-6.0	
			0.5-3.0			0
		1	1	1.0-3.0	ı	0
			•	0.0-1.0	'	10-25
		1	1	1	:	

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil reaction	Organic   matter 		!	  Calcium  carbonate   
	In	рн	Pct	meq/100 g	meq/100 g	Pct
303E:   Trenary	0-2	4.5-6.5	2.0-5.0	4.0-16	 	   0
ITematy	2-6	4.5-6.5	0.5-2.0	1.0-12	 	0   0
i I	6-12	4.5-6.0	2.0-5.0		2.0-16	l 0
ļ	12-17	4.5-5.5	0.5-3.0		2.0-16	0
i	17-26	5.1-6.5	0.5-2.0		1.0-10	0
į	26-37	5.1-7.8	0.0-0.5	4.0-12	i	0
į	37-80	6.6-8.4	0.0-0.5	2.0-9.0	i	10-30
į		İ	į	į	j	j
305B:						
Wurtsmith	0-1	3.5-6.0	50-90			0
	1-4	3.5-6.0	0.5-2.0		0.0-2.0	0
ļ	4-24	3.5-6.0	0.5-1.0		0.0-1.0	0
ļ	24-80	3.5-6.0	0.0-0.5		0.0-1.0	0
Maahan	0 2			 	 	
Meehan	0-3 3-5	3.5-6.5	50-90		1.0-3.0	0   0
I	5-28	3.5-6.5	0.5-2.0		0.0-1.0	0   0
 	28-80	3.5-7.3	0.0-0.5		0.0-1.0	0   0
l I	20 00	3.3 7.3	0.0 0.5	İ	0.0 1.0	l G
306C:		İ	i	i		İ
Deerton,		İ	i	i	İ	İ
dissected	0-1	3.5-6.0	50-90		i	0
į	1-9	3.5-6.0	0.5-2.0		1.0-8.0	0
	9-10	3.5-6.0	2.0-5.0		4.0-16	0
	10-25	3.5-6.0	0.5-3.0		1.0-10	0
	25-39					0
	39-80					0
				!		
Tokiahok,						
dissected		4.5-5.5	50-90			0
ļ i	2-11 11-15	4.5-5.5	0.5-2.0		1.0-7.0   4.0-16	0   0
	15-24	4.5-5.5	0.5-3.0		1.0-10	0   0
 	24-59	4.5-6.5	0.0-0.5	1.0-10		l 0
i I	59-80	5.6-6.5	0.0-0.5	3.0-9.0	 	l 0
i						İ
Jeske, dissected	0-3	3.5-5.5	50-90		i	0
į	3-21	4.5-6.0	0.0-0.5	0.0-4.0	i	0
ĺ	21-31	4.5-6.0				0
	31-80	4.5-6.0				0
ļ				[		
307B:						
Rubicon, very						
deep water						
table	0-2	4.5-5.5				0
ļ i	2-5 5-30	4.5-6.0	1	1.0-9.0	0.2-5.0	0   0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	 	0   0
 	38-80	4.5-6.5	0.1-0.5	0.2-4.0	 	0   0
 	30-00	1.5-0.5			 	, <b>U</b>
307D:						
Rubicon, very		İ	į	į	İ	İ
deep water		İ	i	i	İ	İ
table	0-2	4.5-5.5	50-90			0
į	2-5	4.5-6.0	0.1-1.0	j	0.2-5.0	0
į	5-30	4.5-6.0	0.5-3.0	1.0-9.0	i	0
į	30-38	4.5-6.5	0.1-0.5	0.2-4.0		0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity	cation-	Calcium  carbonate 
	In	pH	Pct	meq/100 g	meq/100 g	Pct
308B: Rubicon	0-2	4.5-5.5	50-90		 	l I 0
Kubicon	2-5	4.5-6.0	0.1-1.0		0.2-5.0	0   0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0		l 0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0		0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0	i	0
		[				
Sultz	0-1	3.5-6.0	1			0
	1-2	3.5-6.5	0.5-3.0		1.0-12	0
	2-6	3.5-6.0	0.1-1.0		0.2-8.0	0
	6-18	3.5-6.5	0.5-3.0		1.0-12	0
	18-51	3.5-6.5	0.0-0.5	0.0-7.0		0
	51-80	3.5-6.5	0.0-0.5	0.8-0.0	 	0 
308D:					 	 
Rubicon	0-2	4.5-5.5	50-90			0
j	2-5	4.5-6.0	0.1-1.0		0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0		0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0		0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0		0
Sultz	0-1	3.5-6.0	   50-90		 	   0
54162	1-2	3.5-6.5	0.5-3.0		1.0-12	l 0
	2-6	3.5-6.0	0.1-1.0		0.2-8.0	l 0
	6-18	3.5-6.5	0.5-3.0		1.0-12	0
	18-51	3.5-6.5	0.0-0.5	0.0-7.0		0
	51-80	3.5-6.5	0.0-0.5	0.0-8.0		0
309B:						
Rubicon, deep						
water table	0-2	4.5-5.5	50-90			0
	2-5 5-30	4.5-6.0	0.1-1.0	1.0-9.0	0.2-5.0	0   0
	30-38	4.5-6.5	0.1-0.5	0.2-4.0	 	0   0
	38-80	4.5-6.5	0.1-0.5	0.2-4.0		l 0
309D:						
Rubicon, deep						
water table	0-2	4.5-5.5	50-90			0
	2-5	4.5-6.0	0.1-1.0		0.2-5.0	0
	5-30	4.5-6.0	0.5-3.0	1.0-9.0	 	0   0
	30-38 38-80	1	0.1-0.5	0.2-4.0	1	0   0
	30-00	4.5-0.5	0.1-0.5	0.2-4.0		İ
310B:		į		İ	j	j
Kalkaska, burned	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0
		1	0.5-3.0	1	1.0-5.0	
		!	0.1-0.5		0.2-4.0	!
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
310D:		 			 	 
Kalkaska, burned	0-2	3.5-6.0	2.0-5.0		2.0-11	l   0
	2-6		0.1-1.0	'	1.0-5.0	
i	6-8	1	2.0-5.0	1	2.0-9.0	1
		1	0.5-3.0	1	1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0

Table 18.--Chemical Properties of the Soils--Continued

	1	1	1	1	1	1
Map symbol	   Depth	   Soil	  Organic	Cation-	  Effective	Calaium
and soil name	Depth	reaction	matter		!	carbonate
and soll name	l I	leaction	maccer	capacity		Carbonace
	 			capacity	capacity	
	In	рН	Pct	meq/100 g	meq/100 g	Pct
			[	[		[
310E: Kalkaska, burned	   0-2	3.5-6.0	2.0-5.0	 	   2.0-11	   0
Kaikaska, Duined	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0   0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0   0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
	İ	İ	į	į	İ	İ
311B:						
Kalkaska, very						
deep water						
table, burned	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
311D:	l I	 	 	 	 	 
Kalkaska, very			i	i	! 	İ
deep water		İ	i	i	İ	İ
table, burned	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6-8	4.5-6.0	2.0-5.0		2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
2425						
312B: Islandlake,	 		 	 	 	 
burned	0-1	3.5-6.0	50-90		! 	0
Durneu	1-2	3.5-6.0	1.0-3.0		1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0		0.8-6.0	0
	8-9	4.5-6.0	2.0-5.0		3.0-10	0
	9-41	4.5-6.0	0.5-3.0		0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5		0.2-7.0	0
				İ		
312D:						
Islandlake,						
burned	0-1	3.5-6.0	50-90			0
	1-2	3.5-6.0	1.0-3.0		1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0		0.8-6.0	0
	8-9		2.0-5.0		3.0-10	0
			0.5-3.0	•	0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5		0.2-7.0	0
313B:	 				 	 
Kalkaska, deep		İ	i	i	İ	İ
water table,	i	İ	i	i	İ	İ
burned	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6	1	0.1-1.0	1	1.0-5.0	0
	6-8	'	2.0-5.0		2.0-9.0	0
	8-16		0.5-3.0	•	1.0-5.0	0
	16-26	1	0.1-0.5	1	0.2-4.0	0
	26-80	'	0.1-0.5			0
	İ	İ	i	i	İ	İ

Table 18.--Chemical Properties of the Soils--Continued

Map symbol   and soil name	Depth	Soil  reaction 	Organic   matter 	Cation-  exchange  capacity		Calcium  carbonate 
	In	рН	Pct	meq/100 g	meq/100 g	Pct
314B:						
Blue Lake, very			<u> </u>			
deep water						
table, burned		4.5-6.0	1		1.0-10	0
	5-7 7-27	4.5-6.0	2.0-5.0		1.0-9.0	0   0
	27-80	4.5-6.5	1		1.0-6.0	0
İ		İ	İ	İ	İ	İ
315B:						
Blue Lake, deep water table,			1		 	 
burned	0-5	4.5-6.0	0.5-2.0		1.0-10	0
	5-7	4.5-6.0	2.0-5.0	i	4.0-10	0
	7-27	4.5-6.0	0.5-3.0		1.0-9.0	0
	27-80	4.5-6.5	0.0-0.5		1.0-6.0	0
316B:						
Blue Lake,					 	 
burned	0-5	4.5-6.0	0.5-2.0		1.0-10	0
j	5-7	4.5-6.0	2.0-5.0	j	4.0-10	0
	7-27	4.5-6.0	1		1.0-9.0	0
	27-80	4.5-6.5	0.0-0.5		1.0-6.0	0
316D:			1		 	 
Blue Lake,						
burned	0-5	4.5-6.0	0.5-2.0	i	1.0-10	0
	5-7	4.5-6.0	2.0-5.0		4.0-10	0
	7-27	4.5-6.0	1		1.0-9.0	0
	27-80	4.5-6.5	0.0-0.5		1.0-6.0	0
317B:						 
Kalkaska, very		İ	İ	İ	İ	
deep water			İ	İ	ĺ	
table	0-2	3.5-6.0	1		2.0-11	0
	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6-8 8-16	4.5-6.0	2.0-5.0		2.0-9.0	0   0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
	26-80	4.5-6.5	1	0.2-4.0		0
İ			İ		ĺ	ĺ
317D:						
Kalkaska, very				1	 	
deep water table	0-2	3.5-6.0	2.0-5.0		2.0-11	   0
	2-6	4.5-6.0	1		1.0-5.0	0
	6-8	4.5-6.0	•	i	2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5	1		0.2-4.0	0
	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
318B:					 	 
Islandlake, very		İ	į	İ	į	į
deep water						
table	0-1	3.5-6.0	•			0
	1-2	3.5-6.0	1	:	1.5-9.0	0
	2-8 8-9	3.5-6.0	•		0.8-6.0	0   0
	9-41	4.5-6.0	1		0.7-6.7	0
	41-80	5.1-6.5	1		0.2-7.0	0
į		İ	İ	İ		İ

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil  reaction 	Organic   matter	exchange	Effective  cation-  exchange  capacity	Calcium  carbonate 
	In	pH	Pct	meq/100 g	meq/100 g	Pct
318D:					 	 
Islandlake, very deep water		 	 	 	 	 
table	0-1	3.5-6.0	50-90		 	l I 0
cabic	1-2	3.5-6.0	1.0-3.0		1.5-9.0	0
	2-8	3.5-6.0	0.5-2.0		0.8-6.0	. 0
	8-9	4.5-6.0	2.0-5.0		3.0-10	0
j	9-41	4.5-6.0	0.5-3.0		0.7-6.7	0
	41-80	5.1-6.5	0.1-0.5		0.2-7.0	0
2100						
319B: Islandlake	0-1	3.5-6.0	   50-90		 	l l 0
ISIAHUIAKE	1-2	3.5-6.0	1.0-3.0		1.5-9.0	0   0
	2-8	3.5-6.0	0.5-2.0		0.8-6.0	0
	8-9	4.5-6.0	2.0-5.0		3.0-10	0
	9-41	4.5-6.0	0.5-3.0		0.7-6.7	0
j	41-80	5.1-6.5	0.1-0.5		0.2-7.0	0
319D:						
Islandlake	0-1 1-2	3.5-6.0	50-90 1.0-3.0			0
	2-8	3.5-6.0	0.5-2.0		1.5-9.0	0   0
	8-9	4.5-6.0	2.0-5.0		3.0-10	0   0
	9-41	4.5-6.0	0.5-3.0		0.7-6.7	l 0
	41-80	5.1-6.5	0.1-0.5		0.2-7.0	0
						ĺ
319E:						
Islandlake	0-1	3.5-6.0	50-90			0
	1-2	3.5-6.0	1.0-3.0		1.5-9.0	0
	2-8 8-9	3.5-6.0	0.5-2.0		0.8-6.0 3.0-10	0   0
	9-41	4.5-6.0	0.5-3.0		0.7-6.7	0   0
	41-80	5.1-6.5	0.1-0.5		0.2-7.0	0
j		İ	İ	į		j
319F:						
Islandlake	0-1	3.5-6.0	50-90			0
	1-2	3.5-6.0	1.0-3.0		1.5-9.0	0
	2-8 8-9	4.5-6.0	0.5-2.0		0.8-6.0 3.0-10	0   0
	9-41	4.5-6.0	0.5-3.0		0.7-6.7	0   0
	41-80	5.1-6.5	0.1-0.5		0.2-7.0	0
j		İ	İ	į		j
320B:						
Kalkaska, deep						
water table		'	2.0-5.0	'	2.0-11	0
	2-6	'	0.1-1.0	'	1.0-5.0	
	6-8 8-16	4.5-6.0	1	1	2.0-9.0 1.0-5.0	
	16-26	4.5-6.5	1	1	0.2-4.0	0   0
	26-80	4.5-6.5	'	1		0
		İ	İ	İ		İ
321B:						
Kalkaska	0-2	3.5-6.0	2.0-5.0	1	2.0-11	0
	2-6		0.1-1.0	,	1.0-5.0	0
	6-8	4.5-6.0	'	1	2.0-9.0	0
	8-16	4.5-6.0	'	1	1.0-5.0	0
	16-26 26-80	4.5-6.5	'	0.2-4.0	0.2-4.0	0   0
	20-00	1	1 0.1-0.5	0.2-4.0	 	1

Table 18.--Chemical Properties of the Soils--Continued

Map symbol	Depth	Soil	Organic	Cation-	Effective	Calcium
and soil name		reaction	matter	exchange	cation-	carbonate
				capacity	exchange	
					capacity	
	In	рн	Pct	meq/100 g	meq/100 g	Pct
321B:					 	 
Deerton	0-1	3.5-6.0	50-90			0
	1-9	3.5-6.0	0.5-2.0		1.0-8.0	0
	9-10	3.5-6.0	2.0-5.0		4.0-16	0
	10-25	3.5-6.0	0.5-3.0		1.0-10	0
	25-39					0
ļ	39-80					0
321D:					 	 
Kalkaska	0-2	3.5-6.0	2.0-5.0		2.0-11	0
	2-6	4.5-6.0	0.1-1.0		1.0-5.0	0
	6 - 8	4.5-6.0	2.0-5.0		2.0-9.0	0
	8-16	4.5-6.0	0.5-3.0		1.0-5.0	0
	16-26	4.5-6.5	0.1-0.5		0.2-4.0	0
ļ	26-80	4.5-6.5	0.1-0.5	0.2-4.0		0
Deerton	0-1	3.5-6.0	50-90		 	0
	1-9	3.5-6.0	0.5-2.0		1.0-8.0	0
	9-10	3.5-6.0	2.0-5.0		4.0-16	0
	10-25	3.5-6.0	0.5-3.0		1.0-10	0
ĺ	25-39					0
ĺ	39-80					0

Table 19.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not were not estimated)

Map symbol		Restrict	Restrictive layer		Subsidence	ence	Potential
and soil name	Kind	Depth to top	Thickness	Hardness	Initial	Total	frost action
		1	r r		턥	п	
10. Beaches							
11C: Deer Park	1	!	-	;	!	}	Low
11E: Deer Park	1	: :	-	;	 :	}	Low
11F: Deer Park	1		-	;	:	}	Low
12B: Rubicon	}	!	!	;	: :	}	Low
12D: Rubicon	1	!	;	1	:	1	Low
12E: Rubicon	1	:	;	1	:	1	Low
13B: Kalkaska	1	:	!	;	:	}	Low
13D: Kalkaska	1	!	-	;	!	}	Low
13E: Kalkaska	1	: :	-	;	 :	}	Low
15A: Croswell	1	: :	-	;	 :	}	Low
16A: Paguin	Ortstein	10-16	10-20	Strongly cemented	!!!	}	Low
17A: Au Gres	1		-	;	:	}	Moderate
18: Kinross	;	   	1		   	}	Moderate   F

Table 19. -- Soil Features -- Continued

		Restrict	Restrictive layer		Subsidence	ence	
Map symbol							Potential
and soil name		Depth		_			for
	Kind	to top	Thickness	Hardness	Initial	Total	frost action
		년 -	ų		u u	In	
19: Deford	;	:	1	:		;	Moderate
21A: Ingalls	!		;	;	;	;	Moderate
24B: Munising	Fragipan	15-25	25-43	Strongly cemented	;	;	Moderate
25B: Munising	Fragipan	15-25	25-43	Strongly cemented	;	;	Moderate
Yalmer	Fragipan	20-40	13-29	Strongly cemented	:	1	Low
25D: Munising	Fragipan	15-25	25-43	Strongly cemented	!	!	Moderate
Yalmer	Fragipan	20-40	13-29	Strongly cemented	;	:	Low
31D: Trenary		:	-	;	;	!	Moderate
33: Ensley	:	:	1	:	;	!	High
35B: Munising, calcareous substratum	Fragipan	15-25	25-43	Strongly cemented		1	Moderate
Yalmer, calcareous substratum	Fragipan	20-40	13-45	Strongly cemented	;	!	Low
Frohling, calcareous substratum	Fragipan	15-25	24-65	Strongly cemented	;	;	Moderate
37B: Grand Sable		:	!	:	:	!	Low
37E: Grand Sable	;	:	;	;	;	!	Low
38B: Rhody	Lithic bedrock Paralithic bedrock	20-50	30-60	Indurated Strongly cemented	<u> </u>	-	High

Table 19.--Soil Features--Continued

		Restrict	Restrictive layer		Subsidence	ence	
Map symbol		-					Potential
and soil name							for
	Kind	to top	Thickness	Hardness	Initial	Total	frost action
   		<u>н</u>	uI		u u	п	
Towes	Lithic bedrock	20-45	35-60	Indurated	;	;	High
	Paralithic bedrock	20-30	1-20	Strongly cemented			1
40B:							
Waiska, very stony	-	!	-	!	!	:	Low
42: Davies	1	:	:	1	:	}	High
46: Jacobsville, very stony Lithic bedrock	Lithic bedrock	20-40	40-60	Indurated	:	;	High
47C: Deerton	Paralithic	20-40	0-20	Moderately	:	!	Low
	bedrock			cemented			
	Lithic bedrock	20-40	40-60	Indurated			
Au Train	Paralithic	10-20	6-20	Moderately	:		Low
	bedrock	_		cemented	_		_
	Lithic bedrock	20-40	40-60	Indurated			
47E:	סימ+ין באפס מימ+ין	20-40	0-20	Moderatelv		;	30
	bedrock		)   	cemented			:
	Lithic bedrock	20-40	40-60	Indurated			
Au Train	Paralithic	10-20	6-20	Moderately	:	}	Low
	bedrock Lithic bedrock	20-40	40-60	cemented Indurated			
48: Burt	Lithic bedrock	10-20	0 - 2 0 9	Indurated	:	;	Moderate
49B: Cookson	Lithic bedrock	20-40	40-60	Indurated	:	;	Moderate
Nahma	Lithic bedrock	20-40	40-60	Indurated	8 - 8	8-16	High
Ruse	- Lithic bedrock	4-20	9 - 2 9	Indurated	:	:	High

Table 19. -- Soil Features -- Continued

					-		
Map symbol		RESCITC	restrictive rayer		Substantice		Potential
and soil name		Depth					for
	Kind		Thickness	Hardness	Initial	Total	frost action
		ű.	п		u I	In	
52B: Summerville	Lithic bedrock	10-20	0 4 - 0 9	Indurated	 	1	Moderate
57: Carbondale					6-18	50-55	High
Lupton	;		;	;	6-18	50-55	High
Tawas	!		;	!	8-25	16-50	High
58: Dawson		:		!	8 - 25	16-50	High
Greenwood	!		;	!	6-18	50-55	High
Loxley	;	:	1	;	6-18	50-55	High
59: Chippeny	Lithic bedrock	16-51	29-64	Indurated	8-25	16-50	High
Nahma	Lithic bedrock	20-40	40-60	Indurated	4 - 8	8-16	High
60: Histosols	;	:	;	;	6-18	50-55	High
Aquents	;	:	1	;	:	-	High
61. Pits							
62F. Udipsamments and Udorthents							
Kiva	;		;	:		1	Low
64D: Kiva	!	: :	:	!	:	;	Low
Jeske, bedrock terrace	Paralithic bedrock Lithic bedrock	10-23	2-30	Strongly cemented Indurated	:	-	Moderate

Table 19.--Soil Features--Continued

Map symbol		Restrict	Restrictive layer		Subsidence	ence	Potential
and soil name		Denth					for
	Kind	to top	Thickness	Hardness	Initial	Total	frost action
		u u	H.		u I	п	
65D: Gongeau, bedrock							
terrace	Paralithic   bedrock	10-20	2-12	Strongly cemented	:	}	High
	Lithic bedrock	20-30	50-60	Indurated			
Deerton, bedrock		0.40	0	الاران د ماران د ماران			1
9	bedrock	0 1 0 1	0	cemented			\$ 0
	Lithic bedrock	20-40	40-60	Indurated			
65F:							
Jeske, bedrock terrace	Paralithic	10-23	2-30	Strongly	:	}	Moderate
	Lithic bedrock	20-40	40-60	Indurated			
Gongeau, bedrock							
terrace	Paralithic	10-20	2-12	Strongly	:	}	High
	bedrock	00-20	7	cemented			
		0					
Deerton, bedrock							
rerrace	Paralitaic   bedrock	70-40	0 - 2 0	Moderately   cemented	:	:	mon.
	Lithic bedrock	20-40	40-60	Indurated			
66D:							
Ruse, bedrock terrace	Paralithic	10-20	0-10	Strongly	:	-	High
	Lithic bedrock	10-20	02-09	Indurated			
Ensign, bedrock terrace Lithic bedrock	Lithic bedrock	10-20	0 2 - 0 9	Indurated	:	;	Moderate
	Paralithic   bedrock	10-20	0-10	Strongly cemented			
Nykanen, bedrock terrace	Paralithic	10-20	0-15	Strongly	:	;	Moderate
	bedrock			cemented	_		
	Lithic bedrock	10-32	48-70	Indurated			
66F:			,	ı			
Ruse, bedrock terrace Paralithic	Paralithic   bedrock	10-20	0-10	Strongly	-	-	High
	Lithic bedrock	10-20	02-09	Indurated			
	_	_			_		_

Table 19. -- Soil Features -- Continued

Lodmin reM		Restrict	Restrictive layer		Subsidence	ence	1
and soil name		Denth					for
	Kind		Thickness	Hardness	Initial	Total	frost action
		uI.	In		uI	In	
66F:							
Ensign, bedrock terrace   Paralithic	Paralithic hadrock	10-20	0-10	Strongly	:	}	Moderate
	Lithic bedrock	10-20	02-09	Indurated			
Nykanen, bedrock		10-20	ر ا ت	*		;	W. C. C. C. C. C. C. C. C. C. C. C. C. C.
))))	bedrock	9	) H	cemented			3
	Lithic bedrock	10-32	48-70	Indurated			
68: Pits, quarry	Lithic bedrock	0 - 4	1	Indurated	!	}	;
69B: Escanaba		:	;	!	:	1	Low
71A: Evart	-	:	1		!	}	High
Sturgeon	;	:	!	!	!	;	High
72E: Deerton, dissected	Paralithic	20-40	0-20	Moderately	;	}	Low
	bedrock Lithic bedrock	20-40	40-60	cemented Indurated			
Tokiahok, dissected	Fragipan	20-40	09-9	Strongly cemented	;	1	Low
Trout Bay, dissected	Paralithic bedrock Lithic bedrock	16-50	1-30	Moderately cemented Indurated	8 - 25	16-50	High
72F: Deerton, dissected	Paralithic	20-40	0-20	             	:	}	Low
	bedrock Lithic bedrock	20-40	40-60	cemented Indurated			
Tokiahok, dissected	Fragipan	20-40	09-9	Strongly cemented	;	1	Low
Trout Bay, dissected   Paralithic   bedrock	Paralithic bedrock	16-50	1-30	Moderately cemented	8 - 25	16-50	High
	Lithic bedrock	17-51	29-63	Indurated			

Table 19.--Soil Features--Continued

		1000	1000 T 000 T 1000 T 1000 T 1000 T 1000 T 1000 T 1000 T 1000 T 1000 T 1000 T 1000 T 1000 T 1000 T 1000 T 1000 T		מל המליים	0	
Map symbol		1	55				Potential
and soil name		Depth					for
	Kind		Thickness	Hardness	Initial	Total	frost action
		 	H.		H H	п	
Garlic, dissected	:	:	:	:	:	:	гом
Blue Lake, dissected	!	:		!		-	Low
Voelker, dissected	Ortstein	10-20	13-26	Strongly cemented	:	;	Low
76E: Garlic, dissected	;		;	;	 :	;	Low
							:
Blue Lake, dissected	-	:	-	:	:	:	Low
Voelker, dissected	Ortstein	10-20	13-26	Strongly cemented	¦ 	:	Low
76F: Garlic, dissected	!	:	;	;	:	!	Low
Blue Lake, dissected	-	:	;	:		;	Low
Voelker, dissected	Ortstein	10-20	13-26	Strongly	: :	!	Low
77B: Garlic	!	:	;	;		!	Low
Blue Lake	}		;	;		;	Low
Voelker	Ortstein	10-20	13-26	Strongly		;	Low
77D: Garlic	1	:	;		:	;	Low
Blue Lake	;	;	1	;	;	1	Low
Voelker	Ortstein	10-20	13-26	Strongly cemented	:	;	Low
77E: Garlic	1	:	1			;	Low
Blue Lake	1	:	1	:		;	Low

Table 19.--Soil Features--Continued

					-		
Map symbol		Restrict	Restrictive Layer		Subsidence	ence	Potential
and soil name		Depth					for
	Kind		Thickness	Hardness	Initial	Total	frost action
		H _	п		u I	ij	
77E: Voelker	Ortstein	10-20	13-26	Strongly		;	Low
88: Cathro	1		;		8-25	16-50	High
Ensley	;	:	1	;	:	}	High
93: Tawas	;	:			8-25	16-50	High
Deford	:	-	-	!	:	}	Moderate
95B: Liminga	;	:			!	}	Low
104C: Fence, dissected	;	:			:	}	High
109D: Rousseau	;	:	;	;	 	;	Low
Dawson	;	:	1	;	8-25	16-50	High
109F: Rousseau	;	:	-	;	:	}	Low
Dawson	;	!	;	;	8-25	16-50	High
125B: Stutts	;	:	1	;	:	}	Low
Kalkaska	;	!	;	!	:	-	Low
125D: Stutts	;	:		;	 	}	Low
Kalkaska	!	-	-	!	:	;	Low
125E: Stutts	;	:	-		 	;	Low
Kalkaska	;	1	1	;	:	1	Low

he 10 - 20: 1 Feet: 10: 614eT

Lodmin reM		Restrictive	tive layer		Subsidence	ence	
and soil name		Depth		_			for
	Kind	to top	Thickness	Hardness	Initial	Total	frost action
		<b>=</b>	<b>=</b>		= -	Ħ	
135B: Munising, calcareous substratum	Fraginan	15-25	25-43	Strongly cemented			Moderate
Ensley	4	:			;	1	High
145C: Munising, dissected, very stony	Fragipan	15-25	25-43	Strongly cemented	;	;	Moderate
Yalmer, dissected, very stony	Fragipan	20-40	13-29	Strongly cemented	:	}	Low
146B: Munising, stony	Fragipan	15-25	25-43	Strongly cemented	!	}	Moderate
Skanee, stony	Fragipan	12-20	6-30	Strongly cemented	:	-	High
147A: Skanee, very stony	  -  Fragipan	12-20	6-30	Strongly cemented	:	}	High
Gay, very stony	!	:	:	!	:	-	High
148B: Shoepac	!	:		;	:	}	Moderate
Ensley	:	:	!	!	:	;	High
155A: Zeba, very stony	Lithic bedrock	20-40	40-60	Indurated	!	}	High
Jacobsville, very stony	stony Lithic bedrock	20-40	40-60	Indurated	:	1	High
157B: Reade	Lithic bedrock	20-40	40-60	Indurated	:	}	Moderate
Nahma	Lithic bedrock	20-40	40-60	Indurated	4 - 8	8-16	High
158C: Munising, dissected, stony	Fragipan	15-25	25-43	Strongly cemented	<u>-</u>	1	Moderate
Abbaye, dissected,	Lithic bedrock	20-40	40-60	Indurated	;	}	Moderate

Table 19.--Soil Features--Continued

		Restrict	Restrictive layer		Subsidence	ence	
Map symbol							Potential
and soil name	Kind	Depth to top	Thickness	Hardness	Initial	Total	frost action
		H	댐		u ii	п	
160B: Damin			- 00-01			;	
במלתדוו	10 10 10 10 10 10 10 10 10 10 10 10 10 1	    					
Finch	Ortstein	7-13	24-40	Strongly cemented	-	}	Low
161B: Yellowdog, stony	Lithic bedrock	20-40	40-60	Indurated	;	;	Low
Buckroe, stony	Lithic bedrock	10-20	02-09	Indurated	!	;	Low
165B: Chocolay, very stony	stony Lithic bedrock	20-40	40-60	Indurated	:	;	Moderate
Waiska, very stony		:	:	!	:	;	Low
166: Skandia	Paralithic bedrock Lithic bedrock	16-50	1-5	Strongly cemented	8 - 25	16-50	High
167: Skandia, stony	Paralithic bedrock	16-50	1-5	Strongly cemented	8 - 25	16-50	High
	Lithic bedrock	16-51	29-64	Indurated			
Jacobsville, stony	Lithic bedrock	20-40	40-60	Indurated	:	:	High
170B: Chocolay, very stony	stony Lithic bedrock	20-40	40-60	Indurated	;	1	Moderate
171B: Paavola, very stony	Fragipan	19-38	13-39	Strongly cemented	:	;	Low
172D: Buckroe, very bouldery	Lithic bedrock	10-20	02-09	Indurated	;	1	Low
Rock outcrop.							
172F: Buckroe, very bouldery	Lithic bedrock	10-20	60-70	Indurated	:	;	Low
Rock outcrop.							

Table 19.--Soil Features--Continued

		Restrict	Restrictive layer		Subsidence	ence	
Map symbol							Potential
and soil name		Depth					for
	Kind	to top	Thickness	Hardness	Initial	Total	frost action
		표 	ដ		n –	п	
176B: Croswell	!	:	1	!	:	;	Low
Kinross	1	:	;	1	:	;	Moderate
Frohling, dissected,	Fragipan	15-25	24-65	Strongly cemented			Moderate
Tokiahok, dissected,	Fragipan	20-40	09-9	Strongly cemented	!	;	Low
185B: McMaster	-	:	}	;	!	}	Low
186B: Chatham, stony	;	:	1	-	;	;	Moderate
186D: Chatham, stony	;	:	1	;	:	;	Moderate
187B: Reade	Lithic bedrock	20-40	40-60	Indurated	:	;	Moderate
188B: Eben, stony	1	:	-	;	!	;	Moderate
188D: Eben, stony	;	:	1	;	:	;	Moderate
188E: Eben, stony	;	:	1	-	;	;	Moderate
191B: Ruse	Lithic bedrock	4-20	94-09	Indurated	!	!	High
Ensign	Lithic bedrock	10-20	0 - 2 0	Indurated	:	-	High
197B: Shoepac	-	:	}	:	;	}	Moderate
Trenary	;	!	-	:	:	}	Moderate

Table 19. -- Soil Features -- Continued

		Restrict	Restrictive layer		Subsidence	ence	
Map symbol							Potential
and soil name		Depth		_	_		for
	Kind	to top	Thickness	Hardness	Initial	Total	frost action
		п -	п		n u	ä	
198B: Shoepac	;	!	;		:	;	Moderate
Reade	Lithic bedrock	20-40	40-60	Indurated	:	;	Moderate
duua: Charlevoix	!	:	;	!	:	;	High
Ensley	:	:	-	:	;	1	High
202B:	0 4 + 	0	0	, to the state of the state of the state of the state of the state of the state of the state of the state of the state of			
		10-20	60-70	cemented Indurated			: )
206B: Traunik	;	:	;		:	;	Low
206D: Traunik	!	:	-			:	Low
211B: Munising	Fragipan	15-25	25-43	Strongly cemented		!	Moderate
Abbaye	Lithic bedrock	20-40	40-60	Indurated		;	Moderate
214B: Kalkaska	!		!			;	Low
Blue Lake	!		;	!	:	;	Low
214D: Kalkaska	:	:	1		:	!	Low
Blue Lake	!	!	;	!	:	:	Low
214E: Kalkaska	!	:	1		:	;	Low
Blue Lake	;	-	1	;	;	;	Low
721B: Jeske	Paralithic bedrock Lithic bedrock	10-23	2-30	Strongly cemented Indurated		-	Moderate
	_	_		_	-		_

Table 19.--Soil Features--Continued

		Restrict	Restrictive layer		Subsidence	ence	
Map symbol					-		Potential
and soil name	Kind	Depth to top	Thickness	Hardness	Initial	Total	for frost action
		uI	u		u u	ц	
221B: Au Train	Paralithic	10-20	6-20	Moderately		;	Low
	bedrock Lithic bedrock	20-40	40-60	cemented			
Gongeau	Paralithic	10-20	2-12	Strongly	;	;	High
	bearock Lithic bedrock	20-30	50-60	Indurated			
225B: Cusino	!		;	;		}	Low
225D: Cusino	;		;	;		}	Low
226B: Kalkaska	;	:		;	:	;	Low
Cusino	!	:	1	!		;	Low
226D: Kalkaska	;	:	1	;	:	}	Low
Cusino	;	:	;	;		}	Low
226E: Kalkaska	;		;	;		}	Low
Cusino	!	!	!	!	:	}	Low
226F: Kalkaska	!		;	;		}	Low
Cusino	1	-		;		-	Low
227A: Halfaday	;	:	1	;	:	}	Low
232B: Shelldrake	;	:	1	;	:	}	Low
233B: Abbaye, very stony	Lithic bedrock	20-40	40-60	Indurated	:	}	Moderate
Zeba, very stony	  - Lithic bedrock 	20-40	40-60	Indurated		1	High

Table 19. -- Soil Features -- Continued

		Restrict	Restrictive layer		Subsidence	ence	
Map symbol							Potential
and soil name		Depth			_		for
	Kind	to top	Thickness	Hardness	Initial	Total	frost action
		H H	п		u I	п	
234A:							
Levasseur, very stony Lithic bedrock	Lithic bedrock	10-20	0 2 - 0 9	Indurated	:	-	Moderate
Burt, very stony	Lithic bedrock	10-20	0 4 - 0 9	Indurated	:	:	Moderate
235B: Sauxhead, verv stonv	Paralithic	10-20	0-7	Moderatelv			Low
•	bedrock  Lithic bedrock	10-20	02-09	cemented Indurated			
Burt, very stony	  -  Lithic bedrock	10-20	0 - 2 0	Indurated	:	;	Moderate
236B: Waiska, extremely bouldery			;	!		1	Low
236D: Waiska, extremely bouldery			;	!		1	Low
237B: Chatham	;	:	}	!	:	!	Moderate
Davies	;	:	;	1	:	;	High
239B: Longrie	Lithic bedrock	20-40	40-60	Indurated		1	Moderate
Shingleton	Lithic bedrock	10-20	0 2 - 0 9	Indurated		1	Low
240F: Trout Bay	Paralithic   bedrock	16-50	1-30	Moderately cemented	8-25	16-50	High
	Lithic bedrock	17-51	29-63	Indurated			: : :
a de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l	Farailenie   bedrock   Lithic bedrock	20-30	27-7	strongry cemented Indurated	   		
Shingleton	Lithic bedrock	10-20	0 - 2 0	Indurated	:	;	Low
Rock outcrop.							

Table 19.--Soil Features--Continued

		Restrict	Restrictive layer		Subsidence	ence	
Map symbol							Potential
and soil name	Kind	Depth to top	Thickness	Hardness	Initial	Total	frost action
			ä		u I	ų	
241: Cathro	;	:	;	;	8-25	16-50	High
Gay	;		1	:	:	1	High
242B: Kalkaska, severely burned	;	 	-	!	:	!	Low
242D: Kalkaska, severely burned	;	:	!	!	!	;	Low
242F: Kalkaska, severely burned	1	   	!	!	!	1	Low
243: Markey	1	 	!	}	8 - 24	18-40	High
245B: Trout Bay	Paralithic bedrock Lithic bedrock	16-50	1-30	Moderately cemented Indurated	8 - 25	16-50	нідь
Lupton	1	:	;	;	15-28	30-48	High
Gongeau	Paralithic bedrock Lithic bedrock	10-20	2-12	Strongly cemented Indurated	!	1	High
246B: Garlic	1	:			 	}	Low
246D: Garlic	1	:			1	}	Low
246E: Garlic	-	: :	-	;	:	}	Low
248B: Escanaba	1	: :	;	;	:	1	Low
Greylock	1	 	-	;	: : :	;	Moderate

Table 19. -- Soil Features -- Continued

Map symbol		Restrict	Restrictive layer		Subsidence	ence	Potential
and soil name		Depth					for
	Kind	to top	Thickness	Hardness	Initial	Total	frost action
		 	H.		In	п	
48D: Escanaba	!		;	1	!	}	Low
Greylock	:	:	;	;	:	;	Moderate
.48E: Escanaba	:	:	1	;	;	}	Low
Greylock	!	:	;	-	:	-	Moderate
49B: Sauxhead	Paralithic bedrock	10-20	0-7	Moderately cemented	:	1	Low
	Lithic bedrock	10-20	0 2 - 0 9	Indurated			
Skandia	Paralithic bedrock	16-50	1-5	Strongly cemented	8 - 25	16-50	High
	Lithic bedrock	16-51	29-64	Indurated			
Chocolay, extremely stony	Lithic bedrock	20-40	40-60	Indurated	;	}	Moderate
Jacobsville, extremely stony	Lithic bedrock	20-40	40-60	Indurated	!	}	High
51B: Greylock	!		;	!	;	}	Moderate
51D:  Greylock	!		;	!	;	1	Moderate
52A:  Finch	Ortstein	7-13	24-40	Strongly cemented	;	}	Low
Kinross	1		;	1	;	-	Moderate
54C: Kalkaska, dissected	:		;	;	;	}	Low
Blue Lake, dissected	-	:	-	-	;	-	Low
54E: Kalkaska, dissected	;		!	;	:	;	Low
Blue Lake, dissected	!	:	-	!	;	1	Low

Table 19.--Soil Features--Continued

		Restric	Restrictive layer		Subsidence	ence	
Map symbol							Potential
and soil name	Kind	Depth to top	Thickness	Hardness	Initial	Total	for frost action
		H.	п		u I	п	
254F: Kalkaska, dissected	;	1	:	:	;	1	Low
Blue Lake, dissected	;	;	:	;	;	1	Low
255D: Wallace	Ortstein	8-18	8-30	Strongly cemented	:	}	Low
256B: Whitewash	;	;		:	;	;	Low
266A: Spot	Ortstein	8-12	2-15	Strongly cemented	:	;	Moderate
Finch	Ortstein	7-13	24-40	Strongly cemented	:	;	Low
267A: Finch	Ortstein	7-13	24-40	Strongly cemented	:		Low
268C: Munising, calcareous substratum, dissected	Fragipan	15-25	25-43	Strongly cemented		;	Moderate
Frohling, calcareous substratum, dissected	Fragipan	15-25	24-65	Strongly cemented	!	;	Moderate
Cookson, dissected	Lithic bedrock	20-40	40-60	Indurated	!	-	Moderate
269E: Frohling, calcareous substratum, dissected	Fragipan	15-25	24-65	Strongly cemented	<u>-</u>	;	Moderate
Garlic, dissected	!		!	!	:	}	Low
Cookson, dissected	Lithic bedrock	20-40	40-60	Indurated	!	-	Moderate
272C: Munising, calcareous substratum, dissected	Fragipan	15-25	25-43	Strongly cemented	;	;	Moderate
Yalmer, calcareous substratum, dissected	Fragipan	20-40	13-45	Strongly cemented	!	1	Low
Frohling, calcareous substratum, dissected	Fragipan	15-25	24-65	Strongly cemented			Moderate

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		Restrict	Restrictive layer		Subsidence	ence	
Map symbol							Potential
and soil name	Kind	Depth to top	Thickness	Hardness	Initial	Total	frost action
			In		r I	r.	
275B: Munising, calcareous substratum	Fragipan	15-25	25-43	Strongly cemented		}	Moderate
Cookson	Lithic bedrock	20-40	40-60	Indurated	;	}	Moderate
281E: Mongo, dissected	:	:	1	:	;	;	High
282B: Furlong	Lithic bedrock	20-40	40-70	Indurated	;	;	Low
Shingleton	Lithic bedrock	10-20	04-09	Indurated	;	;	Low
282D: Furlong	Lithic bedrock	20-40	40-70	Indurated	;	;	Low
Shingleton	Lithic bedrock	10-20	04-09	Indurated	;	;	Low
284B: Steuben	Fragipan	17-26	6-27	Strongly cemented	;	;	Moderate
Blue Lake		:	1	!	:		Low
Kalkaska	!	:	1	!	:	;	Low
284D: Steuben	Fragipan	17-26	6-27	Strongly cemented	;	;	Moderate
Blue Lake	}	:	1		;	1	Low
Kalkaska	;	:	1	-	;	1	Low
284E: Steuben	Fragipan	17-26	6-27	Strongly cemented	;	;	Moderate
Blue Lake		:	1	!	:		Low
Kalkaska	-	:	-	!	:	;	Low
285B: Halfaday	!		;	!	;	;	Low
Kinross	:	:	-	!	:	;	Moderate

Table 19.--Soil Features--Continued

[odmin reM		Restrict	Restrictive layer		Subsidence	ence	1
TOMING OF					-		Foremeran
and soil name	Kind	Lo top	Thickness	Hardness	Initial	Total	frost action
		ri Li	H.		u u	п	
286B: Greylock	1	:	;	;	:	1	Moderate
Cookson	Lithic bedrock	20-40	1	Indurated	:	-	Moderate
287B: McMaster	!	:	1	;	:		Гом
Davies	-	:	;	!	:	;	High
290A: Namur, very stony	Lithic bedrock	4-10	9 4 - 0 4	Indurated	:	}	Moderate
Ruse, very stony	Lithic bedrock	4-20	9 - 2 9	Indurated	:	-	High
292B: Mashek, sandy substratum	Dense material	35-50	19-35	Noncemented		;	Moderate
296D: Islandlake	!		;	;	:		Гом
McMillan	-	:	-	:	:	;	Moderate
296E: Islandlake	!		;	:	:		Гом
McMillan	-	:	;		:	-	Moderate
297B: Rubicon, severely burned	1	:	}	;	: :	;	Low
297D: Rubicon, severely burned	1		!			;	Low
298B: Wurtsmith	!	:	1	;	:	}	Гом
Deford	-	:	;		:	-	Moderate
299F: Shelldrake	!	   	1			1	Low

Table 19. -- Soil Features -- Continued

Map symbol		Restrict	Restrictive layer		Subsidence	ence	Potential
and soil name		Depth					for
	Kind	to top	Thickness	Hardness	Initial	Total	frost action
		u I	п		u u	In	
300F: Shelldrake	!	:	;	!	;	1	Low
Dune land.							
301F: Cookson, dissected	Lithic bedrock	20-40	40-60	Indurated	;	1	Moderate
Nykanen, dissected	Paralithic	10-20	0-15	Strongly	;	-	Moderate
	Dearock Lithic bedrock	10-32	48-70	Indurated			
302B: Dillingham	Fragipan	16-28	8-16	Strongly cemented	;	}	Low
Kalkaska	!	:	-	!	:	}	Low
302D: Dillingham	Fragipan	16-28	8-16	Strongly cemented	;	}	Low
Kalkaska	!	:	-	!	;	;	Low
302E: Dillingham	Fragipan	16-28	8-16	Strongly cemented	!	}	Low
Kalkaska	;	:	1	;	:	-	Low
302F: Dillingham	Fragipan	16-28	8-16	Strongly cemented	;	1	гом
Kalkaska	;	:	1	;	;	-	Low
303B: Kiva	!	:	;	!	!	}	Low
Trenary	;	:	1	;	:	-	Moderate
303D: Kiva	!	:	;	!	;	}	Low
Trenary	!	:	1	!	:	-	Moderate
303E: Kiva	!	!	}	:	;	}	Low
Trenary	;	:	1	;	:	-	Moderate
	_	_		_	=		_

Table 19.--Soil Features--Continued

		Restrict	Restrictive layer		Subsidence	ence	
Toguic dew		:					Forential
and soil name	Kind	Depth to top	Thickness	Hardness	Initial	Total	frost action
		п	u I		uI	In	
305B: Wurtsmith	;	:	:	;		;	Low
 	;	- -	:	!		;	Moderate
306C: Deerton, dissected	Paralithic	20-40	0-20	Moderately		;	Low
	bedrock Lithic bedrock	20-40	40-60	cemented			
Tokiahok, dissected	Fragipan	20-40	09-9	Strongly cemented		;	Low
Jeske, dissected	Paralithic bedrock Lithic bedrock	10-23	2-30	Strongly cemented Indurated	;	}	Moderate
307B: Rubicon, very deep water table		:			:	;	Low
307D: Rubicon, very deep water table	!		:			;	Low
308B: Rubicon	!	:	:				Low
Sultz	;	:		!		}	Low
308D: Rubicon	!	:	:	:	;	}	Low
Sultz	1	:		:		1	Low
309B: Rubicon, deep water table	!	:		;	;	;	Low
309D: Rubicon, deep water table	!	:	:			;	Low
310B: Kalkaska, burned	!	:	:	:		;	Low

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		-					
Map symbol		Restrict	Restrictive layer		Subsidence	ence	Potential
and soil name	Kind	Depth	Thickness	Hardness	Initial	Total	frost action
		H	ä		ä	ri u	
310D: Kalkaska, burned	1	!	:	;		;	Low
310E: Kalkaska, burned	;			1	 	!	Low
311B: Kalkaska, very deep water table, burned	;	:	:		:	}	Low
311D: Kalkaska, very deep water table, burned	;	:	:	1	:	}	Low
312B: Islandlake, burned	;	:		;	:	;	Low
312D: Islandlake, burned	;	:	:	;		;	Low
313B: Kalkaska, deep water table, burned	1	:			:	;	Low
314B: Blue Lake, very deep water table, burned	!	:	:		:	}	Low
315B: Blue Lake, deep water table, burned	;	:	:	1	:	}	Low
316B: Blue Lake, burned	;	:	:	;	:	;	Low
316D: Blue Lake, burned	;	:		;	 	;	Low
317B: Kalkaska, very deep water table	1	:	:		:	;	Low
317D: Kalkaska, very deep water table		:				:	Low

Table 19.--Soil Features--Continued

Map symbol		Restrict	Restrictive layer		Subsidence	lence	Potential
and soil name	in in	Depth	Thickness	Hardness	Tnittial	Total	frost action
		f E	u.		u I	H	
318B: Islandlake, very deep water table			!		:	1	Low
318D: Islandlake, very deep water table			:		: :	1	Low
319B: Islandlake	!	:	¦ 	;			Low
319D: Islandlake	;	:	¦ 	;	: 	-	Low
319E: Islandlake	;	:	:	;	:	;	Low
319F: Islandlake	;	:		;	:	;	Low
320B: Kalkaska, deep water table			:		:	1	Low
321B: Kalkaska		;	:	;		1	Low
Deerton	Paralithic   bedrock   Lithic bedrock	20-40	0-20	Moderately cemented Indurated	: :	1	Low
321D: Kalkaska	;	:	:	;	:		Low
Deerton	Paralithic   bedrock   Lithic bedrock	20-40	0-20	Moderately cemented Indurated	<u> </u>	-	Low

Table 20. -- Soil Moisture Status by Depth

(Depths of layers are in feet)

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
10. Beaches										
11C: Deer Park	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry  2.0-6.7:   Moist	0.0-3.0: Dry  3.0-6.7:  Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
11E: Deer Park	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry   2.0-6.7:	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
11F: Deer Park	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist 
12B: Rubicon	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist 
12D: Rubicon	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
12E: Rubicon	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist 
13B: Kalkaska	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist 	0.0-6.7: Moist 	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist 

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
13D: Kalkaska	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
13E: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
15A: Croswell	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.5: Moist 3.5-6.7: Wet	0.0-1.5: Dry 1.5-4.5: Moist Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7:	0.0-4.5: Moist 4.5-6.7: Wet	0.0-3.0 Moist 3.0-6.7 Wet
16A: Paquin	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0:   Moist   5.0-6.7:   Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.5: Moist 3.5-6.7: Wet	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7:	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7:	0.0-4.5: Moist 4.5-6.7: Wet	0.0-3.0 Moist 3.0-6.7 Wet
17a: Au Gres	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7:	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0 Moist 1.0-6.7 Wet
18: Kinross	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7 Wet
19: Deford	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0:   Moist   2.0-6.7:   Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7 Wet

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	— — Мау	June		August	September	Octobe
21A: Ingalls	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0:   Moist   2.0-6.7:   Wet	0.0-0.5:   Dry   0.5-3.0:   Moist   3.0-6.7:	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0 Moist 1.0-6.7 Wet
24B: Munising	0.0-6.7: Moist 	0.0-6.7: Moist 	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7:	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist 	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-1.5 Moist 1.5-2.0 Wet 2.0-6.7
25B: Munising	0.0-6.7: Moist 	0.0-6.7: Moist 	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist 	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-2.0 Moist 2.0-2.9 Wet 2.5-6.7
Yalmer	0.0-6.7: Moist	0.0-6.7: Moist 	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7: Moist	0.0-1.0:     Moist     1.0-2.5:     Wet     2.5-6.7:     Moist	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7: Moist	0.0-6.7: Moist 	0.0-2.0: Dry  2.0-6.7:  Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-2.0 Moist 2.0-2.5 Wet 2.5-7.0
25D: Munising	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7: Moist	0.0-1.0: Moist 1.0-2.5: Wet 2.5-6.7: Moist	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7:	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-2.0 Moist 2.0-2.5 Wet 2.5-7.0
Yalmer	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7: Moist	0.0-1.0:   Moist   1.0-2.5:   Wet   2.5-6.7:   Moist	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry   3.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0   Moist   2.0-2.5   Wet   2.5-7.0

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
31D: Trenary	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
33: Ensley	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7:	0.0-1.0:   Moist  1.0-6.7:   Wet	0.0-2.0: Moist  2.0-6.7:	0.0-1.5: Moist 1.5-6.7: Wet	0.0-0.5 Moist 0.5-6.7 Wet
35B: Munising	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-1.5 Moist 1.5-2.0 Wet 2.0-6.7 Moist
Уаlmer	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7: Moist	0.0-1.0: Moist 1.0-2.5: Wet 2.5-6.7: Moist	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7: Moist	0.0-6.7: Moist 	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist 	0.0-2.0 Moist 2.0-2.5 Wet 2.5-7.0
Frohling	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5:   Dry   1.5-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
37B: Grand Sable	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
Grand Sable	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry   2.0-6.7:   Moist	0.0-3.0: Dry  3.0-6.7:  Moist	0.0-6.7: Moist	0.0-6.7 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
38B: Rhody	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-0.5: Moist 0.5-3.0: Wet	0.0-1.0: Moist 1.0-3.0: Wet	0.0-2.0: Moist 2.0-3.0: Wet	0.0-1.5: Moist 1.5-3.0: Wet	0.0-3.0 Wet
Towes	0.0-2.0: Moist 2.0-2.2: Wet	0.0-2.0: Moist 2.0-2.2: Wet	0.0-1.5: Moist 1.5-2.2: Wet	0.0-1.0: Moist 1.0-2.2: Wet	0.0-0.5: Moist 0.5-2.2:	0.0-2.0: Moist 2.0-2.2:	0.0-2.2: Moist 	0.0-2.2:   Moist 	0.0-2.2:   Moist 	0.0-1.0 Moist 1.0-2.2 Wet
40B: Waiska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
42: Davies	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7:	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7:	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7 Wet
46: Jacobsville	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-0.5:   Moist  0.5-3.0:   Wet	0.0-1.0: Moist 1.0-3.0: Wet	0.0-2.0: Moist 2.0-3.0: Wet	1.5-3.0: Wet 0.0-1.5: Moist	0.0-3.0 Wet
47C: Deerton	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.0: Dry 2.0-2.1: Moist	0.0-2.1: Dry	0.0-2.1:   Moist 	0.0-2.1   Moist 
Au Train	0.0-2.7: Moist	0.0-1.5:   Moist   1.5-2.7:   Wet	0.0-1.5: Moist 1.5-2.7: Wet	0.0-1.0: Moist 1.0-2.7: Wet	0.0-1.5:   Moist  1.5-2.7:   Wet	0.0-2.7: Moist	0.0-0.5: Dry 0.5-2.7: Moist	0.0-1.0: Dry 1.0-2.7: Moist	0.0-1.5: Moist 1.5-2.7: Wet	0.0-1.5 Moist 1.5-2.7 Wet
47E: Deerton	0.0-2.1: Moist 	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.0: Dry 2.0-2.1: Moist	0.0-2.1: Dry	0.0-2.1: Moist	0.0-2.1 Moist

Table 20.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
47E: Au Train	0.0-2.7: Moist	0.0-1.5: Moist 1.5-2.7:	0.0-1.5: Moist 1.5-2.7: Wet	0.0-1.0: Moist 1.0-2.7: Wet	0.0-1.5: Moist 1.5-2.7: Wet	0.0-2.7: Moist	0.0-0.5: Dry 0.5-2.7: Moist	0.0-1.0: Dry 1.0-2.7: Moist	0.0-1.5: Moist 1.5-2.7: Wet	0.0-1.5 Moist 1.5-2.7 Wet
48: Burt	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-0.5:   Moist   0.5-1.6:   Wet	0.0-1.0: Moist 1.0-1.6: Wet	0.0-1.6: Moist	0.0-1.5: Moist 1.5-1.6: Wet	0.0-1.6 Wet
49B: Cookson	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-1.0: Dry 1.0-3.0: Moist	0.0-1.5: Dry 1.5-3.0: Moist	0.0-3.0: Moist	0.0-3.0 Moist
51: Nahma	0.0-2.5: Wet	0.0-2.5: Wet	0.0-2.5: Wet	0.0-2.5: Wet	0.0-2.5: Wet	0.0-0.5:   Moist   0.5-2.5:   Wet	0.0-1.0: Moist 1.0-2.5: Wet	0.0-2.0: Moist 2.0-2.5:	0.0-1.5: Moist 1.5-2.5: Wet	0.0-2.5 Wet
Ruse	0.0-1.2: Wet	0.0-1.2: Wet	0.0-1.2: Wet	0.0-1.2: Wet	0.0-1.2: Wet	0.0-0.5:   Moist   0.5-1.2:   Wet	0.0-1.0: Moist 1.0-1.2: Wet	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2 Wet
52B: Summerville	0.0-1.1: Moist	0.0-1.1: Moist	0.0-1.1: Moist	0.0-1.1: Moist 	0.0-1.1: Moist 	0.0-1.1: Moist	0.0-1.0: Dry 1.0-1.1: Moist	0.0-1.1: Dry	0.0-1.1: Moist	0.0-1.1 Moist
57: Carbondale	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7 Wet
Lupton	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7 Wet

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	  September 	Octobe:
57: Tawas	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7:	0.0-1.0:   Moist   1.0-6.7:   Wet	0.0-0.5: Moist 0.5-6.7:	0.0-6.7 Wet
58: Dawson	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-6.7: Wet	0.0-6.7 Wet
Greenwood	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:	0.0-0.5: Moist 0.5-6.7:	0.0-6.7:   Wet 	0.0-6.7 Wet
Loxley	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-0.5: Moist 0.5-6.7:	0.0-6.7:   Wet 	0.0-6.7   Wet
59: Chippeny	0.0-2.3: Wet	0.0-2.3: Wet	0.0-2.3: Wet	0.0-2.3:   Wet 	0.0-2.3:   Wet 	0.0-0.5: Moist 0.5-2.3:	   0.0-1.0:   Moist  1.0-2.3:   Wet	0.0-2.0: Moist 2.0-2.3: Wet	   0.0-1.5:   Moist  1.5-2.3:   Wet	0.0-2.3 Wet
Nahma	0.0-2.5: Wet	0.0-2.5: Wet	0.0-2.5: Wet	0.0-2.5: Wet	0.0-2.5: Wet	0.0-0.5:   Moist   0.5-2.5:   Wet	0.0-1.0:   Moist   1.0-2.5:   Wet	0.0-2.0:   Moist  2.0-2.5:   Wet	0.0-1.5:   Moist  1.5-2.5:   Wet	0.0-2.5 Wet
60: Histosols	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7:	0.0-6.7:	0.0-6.7:	0.0-6.7: Wet	0.0-6.7:	0.0-6.7 Wet
Aquents	0.0-6.7: Wet	0.0-6.7:   Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7 Wet
61. Pits										
62F. Udipsamments and Udorthents										

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
64B: Kiva	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
64D: Kiva	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
65D: Jeske	0.0-1.0: Moist 1.0-1.7: Wet	0.0-0.5: Moist 0.5-1.7: Wet	0.0-0.5: Moist 0.5-1.7: Wet	0.0-1.7: Wet	0.0-0.5: Moist 0.5-1.7: Wet	0.0-1.5: Moist 1.5-1.7: Wet	0.0-1.7: Moist	0.0-1.7: Moist	0.0-1.5: Moist 1.5-1.7: Wet	0.0-1.0 Moist 1.0-1.7 Wet
Gongeau	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-0.5:   Moist  0.5-1.5:   Wet	0.0-1.0: Moist 1.0-1.5: Wet	0.0-1.5: Moist	0.0-1.5: Moist	0.0-1.5 Wet
Deerton	0.0-2.1: Moist	0.0-2.1: Moist 	0.0-2.1: Moist 	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.0: Dry 2.0-2.1: Moist	0.0-2.1: Dry	0.0-2.1: Moist	0.0-2.1 Moist 
65F: Jeske	0.0-1.0: Moist 1.0-1.7: Wet	0.0-0.5: Moist 0.5-1.7: Wet	0.0-0.5: Moist 0.5-1.7: Wet	0.0-1.7: Wet	0.0-0.5: Moist 0.5-1.7: Wet	0.0-1.5: Moist 1.5-1.7: Wet	0.0-1.7: Moist	0.0-1.7: Moist	0.0-1.5: Moist 1.5-1.7: Wet	0.0-1.0 Moist 1.0-1.7 Wet
Gongeau	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-0.5: Moist 0.5-1.5: Wet	0.0-1.0: Moist 1.0-1.5: Wet	0.0-1.5: Moist	0.0-1.5: Moist	0.0-1.5 Wet
Deerton	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1:   Moist 	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.0: Dry 2.0-2.1: Moist	0.0-2.1: Dry	0.0-2.1: Moist	0.0-2.1 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
6D: Ruse	0.0-1.1: Wet	0.0-1.1: Wet	0.0-1.1: Wet	0.0-1.1: Wet	0.0-1.1: Wet	0.0-0.5: Moist 0.5-1.1:	0.0-1.0: Moist 1.0-1.1: Wet	0.0-1.1: Moist	0.0-1.1: Moist	0.0-1.1 Wet
Ensign	0.0-1.2:   Moist 	0.0-1.2:   Moist 	0.0-1.2: Moist	0.0-1.0:   Moist  1.0-1.2:   Wet	0.0-0.5:   Moist   0.5-1.2:   Wet	0.0-1.2:   Moist 	0.0-1.2:   Moist 	0.0-1.2:   Moist 	0.0-1.2:   Moist 	0.0-1.0 Moist 1.0-1.2 Wet
Nykanen	0.0-1.2: Moist	0.0-1.2:   Moist 	0.0-1.2: Moist	0.0-1.0:   Moist  1.0-1.2:   Wet	0.0-1.2:   Moist 	0.0-1.2:   Moist 	0.0-1.0:   Dry   1.0-1.2:   Wet	0.0-1.2:   Dry 	0.0-1.2:   Moist 	0.0-1.0 Moist 1.0-1.2 Wet
6F: Ruse	0.0-1.1: Wet	0.0-1.1:   Wet 	0.0-1.1: Wet	0.0-1.1: Wet	0.0-1.1: Wet	0.0-0.5:   Moist  0.5-1.1:   Wet	0.0-1.0: Moist 1.0-1.1:	0.0-1.1:   Moist 	0.0-1.1: Moist	0.0-1.1 Wet
Ensign	0.0-1.2: Moist	0.0-1.2:   Moist 	0.0-1.2: Moist 	0.0-1.0: Moist 1.0-1.2:	0.0-0.5:   Moist   0.5-1.2:   Wet	0.0-1.2:   Moist 	0.0-1.2: Moist	0.0-1.2:   Moist 	0.0-1.2: Moist	0.0-1.0 Moist 1.0-1.2 Wet
Nykanen	0.0-1.2: Moist	0.0-1.2:   Moist 	0.0-1.2: Moist	0.0-1.0: Moist 1.0-1.2:	0.0-1.2:   Moist 	0.0-1.2:   Moist 	0.0-1.0: Dry 1.0-1.2:	0.0-1.2:   Dry 	0.0-1.2: Moist	0.0-1.0 Moist 1.0-1.2 Wet
8. Pits, quarry										
9B: Escanaba	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
1A: Bvart	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0:   Moist  1.0-6.7:   Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7 Wet

Table 20.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
71A: Sturgeon	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7:	0.0-2.5: Moist 2.5-6.7: Wet	0.0-1.5 Moist 1.5-6.7 Wet
72E: Deerton	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1:   Moist 	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.0: Dry 2.0-2.1: Moist	0.0-2.1:   Dry 	0.0-2.1:   Moist 	0.0-2.1 Moist
Tokiahok	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist 
Trout Bay	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6:   Wet 	0.0-1.6:   Wet 	0.0-1.6: Wet	0.0-1.6: Wet	0.0-0.5: Moist 0.5-1.6: Wet	0.0-1.0:   Moist  1.0-1.6:   Wet	0.0-0.5:   Moist   0.5-1.6:   Wet	0.0-1.6 Wet
72F: Deerton	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.0: Dry 2.0-2.1: Moist	0.0-2.1:   Dry 	0.0-2.1:   Moist 	0.0-2.1 Moist
Tokiahok	0.0-6.7: Moist	0.0-6.7: Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
Trout Bay	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6:   Wet 	0.0-1.6: Wet	0.0-1.6: Wet	0.0-0.5: Moist 0.5-1.6: Wet	0.0-1.0:   Moist  1.0-1.6:   Wet	0.0-0.5:   Moist   0.5-1.6:   Wet	0.0-1.6 Wet
Garlic	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
76C: Blue Lake	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
Voelker	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist 
76E: Garlic	0.0-6.7: Moist	   0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7   Moist 
Blue Lake	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
Voelker	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist 
76F: Garlic	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:	0.0-6.7:   Moist 	0.0-6.7 Moist
Blue Lake	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
Voelker	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
		_	_	_	_	_		_	_	

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
77B: Garlic	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist 
Voelker	0.0-6.7: Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
77D: Garlic	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
Voelker	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist 
77E: Garlic	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
Voelker	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
88: Cathro	0.0-7.0: Wet	0.0-7.0:   Wet 	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-0.5:   Moist   0.5-7.0:   Wet	0.0-1.0:   Moist  1.0-7.0:   Wet	0.0-0.5:   Moist   0.5-7.0:   Wet	0.0-7.0 Wet
Ensley	0.0-7.0:   Wet	0.0-7.0:   Wet 	0.0-7.0: Wet	0.0-7.0:   Wet 	0.0-7.0:   Wet 	0.0-0.5:   Moist  0.5-7.0:   Wet	0.0-1.0:   Moist  1.0-7.0:   Wet	0.0-2.0:   Moist  2.0-7.0:   Wet	0.0-1.5:   Moist  1.5-7.0:   Wet	0.0-0.5 Moist 0.5-7.0
93: Tawas	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-1.0:   Moist  1.0-6.7:   Wet	0.0-0.5:   Moist  0.5-6.7:	0.0-6.7 Wet
Deford	0.0-6.7: Wet	0.0-6.7:   Wet	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7:   Wet 	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-1.5:   Moist   1.5-6.7:   Wet	0.0-2.0:   Moist   2.0-6.7:   Wet	0.0-1.0:   Moist   1.0-6.7:   Wet	0.0-6.7 Wet
95B: Liminga	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	   0.0-2.0:   Dry  2.0-6.7:   Moist	   0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7   Moist 
104C: Fence	0.0-5.5: Moist 5.5-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-1.5:   Moist   1.5-6.7:   Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet	0.0-1.0:   Dry   1.0-6.0:   Moist   6.0-6.7:	0.0-1.5:   Dry   1.5-6.7:   Moist	0.0-6.0: Moist 6.0-6.7: Wet	0.0-5.0 Moist 5.0-6.7 Wet
109D: Rousseau	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
Dawson	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-0.5:   Moist  0.5-6.7:   Wet	0.0-6.7: Wet	0.0-6.7 Wet

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
109F: Rousseau	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Dawson	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7:	0.0-0.5: Moist 0.5-6.7:	0.0-6.7: Wet	0.0-6.7 Wet
125B: Stutts	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
125D: Stutts	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
125E: Stutts	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
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Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
135B: Munising	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0:   Moist   1.0-2.0:   Wet   2.0-6.7:   Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5:   Dry   1.5-6.7:   Moist	0.0-6.7: Moist	0.0-1.5 Moist 1.5-2.0 Wet 2.0-6.7 Moist
Ensley	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0:   Wet 	0.0-7.0: Wet	0.0-0.5:   Moist   0.5-7.0:   Wet	0.0-1.0:   Moist  1.0-7.0:   Wet	0.0-2.0:   Moist  2.0-7.0:   Wet	0.0-1.5:   Moist  1.5-7.0:   Wet	Moist 0.5-7.0
145C: Munising	0.0-6.7: Moist 	0.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist 	0.0-1.0:   Dry   1.0-6.7:   Moist 	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-2.0 Moist 2.0-2.9 Wet 2.5-6.7
Yalmer	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5:     Moist 1.5-2.0:     Wet 2.0-6.7:     Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7:	0.0-1.5:     Moist 1.5-2.0:     Wet 2.0-6.7:     Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-2.0:   Dry  2.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7   Moist 
146B: Munising	0.0-6.7: Moist	0.0-6.7: Moist 	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist 	0.0-1.5:   Dry   1.5-6.7:   Moist	0.0-6.7: Moist	0.0-2.0 Moist 2.0-2.5 Wet 2.5-6.7
Skanee	0.0-5.5: Moist 5.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-0.5: Moist 0.5-1.2: Wet 1.2-4.5: Moist 4.5-6.7: Wet	0.0-0.5: Moist 0.5-1.2: Wet 1.2-4.5: Moist 4.5-6.7:	0.0-1.0: Moist 1.0-1.2: Wet 1.2-4.5: Moist 4.5-6.7: Wet	0.00-5.5: Moist 5.5-6.7: Wet 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.0-0.5:   Dry   0.5-6.7:   Moist 	0.0-6.7: Moist	0.0-5. Moist 5.5-6.7 Wet

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
147A: Skanee	0.0-5.5: Moist 5.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-0.5: Moist 0.5-1.2: Wet 1.2-4.5: Moist	0.0-0.5: Moist 0.5-1.2: Wet 11.2-4.5: Moist	0.0-1.0: Moist 1.0-1.2: Wet 1.2-4.5: Moist	0.0-5.5: Moist 5.5-6.7: Wet	0.0-0.5: Dry 0.5-6.7: Moist	0.0-6.7: Moist	0.0-5.5 Moist 5.5-6.7 Wet
Gay	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	Wet 0.0-6.7:	Wet   Wet   Net	Met Moist 0.5-6.7:	0.0-1.5: Moist 1.5-6.7:	0.0-2.0: Moist 2.0-6.7:	0.0-1.0: Moist 1.0-6.7:	0.0-6.7 Wet
148B: Shoepac	0.0-5.5: Moist 5.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet	0.0-1.0: Dry 1.0-6.0: Moist 6.0-6.7:	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.0: Moist 6.0-6.7: Wet	0.0-5.0 Moist 5.0-6.7 Wet
Ensley	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-0.5: Moist 0.5-7.0: Wet	0.0-1.0: Moist 1.0-7.0: Wet	0.0-2.0: Moist 2.0-7.0: Wet	0.0-1.5: Moist 1.5-7.0: Wet	0.0-0.5 Moist 0.5-7.0
155A: Zeba	0.0-2.0: Moist 2.0-2.8: Wet	0.0-2.0: Moist 2.0-2.8: Wet	0.0-1.5: Moist 1.5-2.8: Wet	0.0-1.0: Moist 1.0-2.8: Wet	0.0-0.5: Moist 0.5-2.8:	0.0-2.0: Moist 2.0-2.8: Wet	0.0-2.5: Moist 2.5-2.8: Wet	0.0-2.8: Moist	0.0-2.5: Moist 2.5-2.8: Wet	0.0-1.0 Moist 1.0-2.8 Wet
Jacobsville	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-0.5: Moist 0.5-3.0: Wet	0.0-1.0:   Moist  1.0-3.0:   Wet	0.0-2.0: Moist 2.0-3.0:	1.5-3.0: Wet 0.0-1.5: Moist	0.0-3.0 Wet
157B: Reade	0.0-2.3: Moist	0.0-2.3: Moist	0.0-2.0: Moist 2.0-2.3: Wet	0.0-1.0: Moist 1.0-2.3: Wet	0.0-2.0: Moist 2.0-2.3: Wet	0.0-2.3: Moist 	0.0-1.0: Dry 1.0-2.3: Wet	0.0-1.5: Dry 1.5-2.3: Moist	0.0-2.3: Moist	0.0-1.0 Moist 1.0-2.3 Wet

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octob
157B: Nahma	0.0-2.5: Wet	0.0-2.5: Wet	0.0-2.5: Wet	0.0-2.5: Wet	0.0-2.5: Wet	0.0-0.5: Moist 0.5-2.5:	0.0-1.0: Moist 1.0-2.5:	0.0-2.0: Moist 2.0-2.5:	0.0-1.5: Moist 1.5-2.5:	0.0-2. Wet
Munising	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet	0.0-1.0: Moist 1.0-2.0:	0.0-1.5: Moist 1.5-2.0: Wet	Wet 0.0-6.7: Moist	Wet 0.0-1.0: Dry 1.0-6.7: Moist	Wet 0.0-1.5: Dry 1.5-6.7: Moist	Wet 0.0-6.7: Moist	0.0-2. Moist 2.0-2.
Abbaye	0.0-2.7: Moist	0.0-2.7: Moist	2.0-6.7: Moist 0.0-2.0: Moist 2.0-2.7:	2.0-6.7: Moist 0.0-1.0: Moist 1.0-2.7:	2.0-6.7: Moist 0.0-2.0: Moist 2.0-2.7: Wet	0.0-2.7: Moist	0.0-1.0: Dry 1.0-2.7: Moist	0.0-1.5: Dry 1.5-2.7: Moist	0.0-2.7: Moist	2.5-6. Moist 0.0-1. Moist 1.0-2.
160B: Paquin	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.0:   Moist   2.0-6.7:   Wet	0.0-3.5: Moist 3.5-6.7: Wet	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7:	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7:	0.0-4.5: Moist 4.5-6.7: Wet	0.0-3. Moist 3.0-6. Wet
Finch	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7:	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1. Moist 1.0-6. Wet
161B; Yellowdog	0.0-2.7: Moist	0.0-2.7: Moist	0.0-2.7: Moist	0.0-2.7: Moist	0.0-2.7:   Moist 	0.0-2.7: Moist	0.0-2.0: Dry 2.0-2.7: Moist	0.0-2.7: Dry	0.0-2.7: Moist	0.0-2. Moist
Buckroe	0.0-1.2:   Moist	0.0-1.2:   Moist	0.0-1.2:   Moist 	0.0-1.2:   Moist 	0.0-1.2: Moist	0.0-1.2:   Moist	0.0-1.2:   Dry	0.0-1.2:   Dry	0.0-1.2: Moist	0.0-1. Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe:
165B: Chocolay	0.0-2.3: Moist	0.0-2.3: Moist	0.0-2.0: Moist 2.0-2.3: Wet	0.0-1.0:   Moist   1.0-2.3:   Wet	0.0-2.0: Moist 2.0-2.3: Wet	0.0-2.3: Moist	0.0-1.0: Dry 1.0-2.3: Moist	0.0-1.5:   Dry   1.5-2.3:   Moist	0.0-2.3:   Moist 	0.0-1.0 Moist 1.0-2.3 Wet
Waiska	0.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
166: Skandia	0.0-2.2: Wet	0.0-2.2: Wet	0.0-2.2: Wet	0.0-2.2: Wet	0.0-2.2: Wet	0.0-2.2: Wet	0.0-0.5: Moist 0.5-2.2: Wet	0.0-1.0:   Moist  1.0-2.2:   Wet	0.0-0.5: Moist 0.5-2.2:	0.0-2.2 Wet
167 : Skandia	0.0-2.2: Wet	0.0-2.2: Wet	0.0-2.2: Wet	0.0-2.2: Wet	0.0-2.2: Wet	0.0-2.2:   Wet	0.0-0.5: Moist 0.5-2.2: Wet	0.0-1.0:   Moist  1.0-2.2:   Wet	0.0-0.5: Moist 0.5-2.2: Wet	0.0-2.2 Wet
Jacobsville	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-0.5:   Moist  0.5-3.0:   Wet	0.0-1.0: Moist 1.0-3.0: Wet	0.0-2.0:   Moist   2.0-3.0:   Wet	1.5-3.0:   Wet  0.0-1.5:   Moist	0.0-3.0 Wet
170B: Chocolay	0.0-2.3: Moist	0.0-2.3: Moist	0.0-2.0: Moist 2.0-2.3: Wet	0.0-1.0:   Moist  1.0-2.3:   Wet	0.0-2.0: Moist 2.0-2.3: Wet	0.0-2.3: Moist	0.0-1.0: Dry 1.0-2.3: Moist	0.0-1.5:   Dry   1.5-2.3:   Moist	0.0-2.3:   Moist 	0.0-1.0 Moist 1.0-2.3 Wet
171B: Paavola	0.0-6.7: Moist 	0.0-6.7: Moist 	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-1.0: Moist 1.0-2.6: Wet 2.6-6.7: Moist	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-6.7: Moist 	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist 	0.0-2.0 Moist 2.0-2.6 Wet 2.6-6.7 Moist
172D: Buckroe	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Dry	   0.0-1.2:   Dry 	0.0-1.2:   Moist	0.0-1.2 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octob
172F: Buckroe	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	  0.0-1.2:   Dry	0.0-1.2: Dry	0.0-1.2:   Moist	0.0-1. Moist
Rock outcrop.										
176B: Croswell	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0:   Moist  2.0-6.7:	0.0-2.0:   Moist   2.0-6.7:   Wet	0.0-3.5: Moist 3.5-6.7: Wet	0.0-1.5:   Dry   1.5-4.5:   Moist	0.0-2.5: Dry 2.5-5.5: Moist	0.0-4.5: Moist 4.5-6.7:	0.0-3. Moist 3.0-6.
Kinross	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:	0.0-0.5: Moist 0.5-6.7:	4.5-6.7: Wet  0.0-1.5: Moist 1.5-6.7:	5.5-6.7: Wet  0.0-2.0: Moist 2.0-6.7:	0.0-1.5: Moist 1.5-6.7:	0.0-6. Wet
181E: Frohling	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	Wet   0.0-6.7:   Moist 	Wet 0.0-6.7: Moist	Wet   0.0-1.0:   Dry   1.0-6.7:	Wet  0.0-1.5:  Dry  1.5-6.7:	Wet   0.0-6.7:   Moist 	0.0-6.   Moist
Tokiahok	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6. Moist
185B: McMaster	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.0:   Moist   2.0-6.7:   Wet	0.0-3.5: Moist 3.5-6.7: Wet	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7:	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7:	0.0-4.5: Moist 4.5-6.7: Wet	0.0-3. Moist 3.0-6. Wet
186B: Chatham	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6. Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April		June	July	August	September  -	Octobe
186D: Chatham	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
187B: Reade	0.0-2.3: Moist	0.0-2.3: Moist	0.0-2.0: Moist 2.0-2.3: Wet	0.0-1.0: Moist 1.0-2.3: Wet	0.0-2.0: Moist 2.0-2.3: Wet	0.0-2.3: Moist	0.0-1.0: Dry 1.0-2.3: Wet	0.0-1.5: Dry 1.5-2.3: Moist	0.0-2.3: Moist	0.0-1.0 Moist 1.0-2.3 Wet
188B: Eben	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
188D: Eben	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
188E: Eben	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
191B: Ruse	0.0-1.2: Wet	0.0-1.2: Wet	0.0-1.2:   Wet 	0.0-1.2: Wet	0.0-1.2: Wet	0.0-0.5: Moist 0.5-1.2:	0.0-1.0:   Moist  1.0-1.2:   Wet	0.0-1.2: Moist	0.0-1.2:   Moist 	0.0-1.2 Wet
Ensign	0.0-1.2: Moist	0.0-1.2: Moist 	0.0-1.2: Moist	0.0-1.0:   Moist  1.0-1.2:   Wet	0.0-0.5:   Moist  0.5-1.2:   Wet	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.0 Moist 1.0-1.2 Wet

Table 20.--Soil Moisture Status by Depth--Continued

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Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
197B: Shoepac	0.0-5.5: Moist 5.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet	0.0-1.0: Dry 1.0-6.0: Moist 6.0-6.7:	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.0: Moist 6.0-6.7: Wet	0.0-5.0 Moist 5.0-6.7 Wet
Trenary	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.0:   Dry  1.0-6.7:   Moist	0.0-1.5:   Dry   1.5-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
198B: Shoepac	0.0-5.5: Moist 5.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet	0.0-1.0: Dry 1.0-6.0: Moist 6.0-6.7:	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.0: Moist 6.0-6.7: Wet	0.0-5.0 Moist 5.0-6.7 Wet
Reade	0.0-2.3: Moist	0.0-2.3: Moist	0.0-2.0: Moist 2.0-2.3: Wet	0.0-1.0: Moist  1.0-2.3:   Wet	0.0-2.0: Moist  2.0-2.3:   Wet	0.0-2.3:   Moist 	0.0-1.0: Dry 1.0-2.3: Wet	0.0-1.5: Dry 1.5-2.3: Moist	0.0-2.3: Moist	0.0-1.0 Moist 1.0-2.3
200A: Charlevoix	0.0-1.5: Moist 1.5-7.0: Wet	0.0-1.5:   Moist  1.5-7.0:   Wet	0.0-1.5: Moist 1.5-7.0: Wet	0.0-0.5:   Moist   1.0-7.0:   Wet	0.0-0.5:   Moist   0.5-7.0:   Wet	0.0-2.0:   Moist	0.0-2.5: Moist 2.5-7.0: Wet	0.0-0.5: Dry 0.5-3.0: Moist 3.0-7.0: Wet	0.0-2.5: Moist 2.5-7.0: Wet	0.0-1.5 Moist 1.5-7.0 Wet
Ensley	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-1.0:   Moist  1.0-6.7:	0.0-2.0: Moist 2.0-6.7:	0.0-1.5:   Moist  1.5-6.7:   Wet	0.0-0.5 Moist 0.5-6.7
202B: Sauxhead	0.0-1.4: Moist	0.0-1.4:   Moist 	0.0-1.4: Moist	0.0-1.0:   Moist  1.0-1.4:   Wet	0.0-1.0:   Moist   1.0-1.4:   Wet	0.0-1.4:   Moist 	0.0-0.5: Dry 0.5-1.1: Moist	0.0-1.0: Dry 1.0-1.1: Moist	0.0-1.2:   Moist 	0.0-1.0   Moist  1.0-1.4   Wet

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
206B: Traunik	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 1.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
206D: Traunik	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 1.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
211B: Munising	0.0-6.7: Moist 	0.0-6.7: Moist 	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7:	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7:	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7:	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-2.0 Moist 2.0-2.5 Wet 2.5-6.7 Moist
Abbaye	0.0-2.7: Moist	0.0-2.7:   Moist 	0.0-2.0: Moist 2.0-2.7:	0.0-1.0: Moist 1.0-2.7:	0.0-2.0: Moist 2.0-2.7:	0.0-2.7: Moist	0.0-1.0: Dry 1.0-2.7: Moist	0.0-1.5:   Dry   1.5-2.7:   Moist	0.0-2.7: Moist	0.0-1.0 Moist 1.0-2.7 Wet
214B: Kalkaska	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Blue Lake	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
214D: Kalkaska	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
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Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
214E: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Blue Lake	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry  2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7   Moist 
221B: Jeske	0.0-1.0: Moist 1.0-1.7: Wet	0.0-0.5: Moist 0.5-1.7:	0.0-0.5: Moist 0.5-1.7:	0.0-1.7: Wet	0.0-0.5:   Moist   0.5-1.7:   Wet	0.0-1.5: Moist 1.5-1.7: Wet	0.0-1.7: Moist	0.0-1.7: Moist	0.0-1.5: Moist 1.5-1.7: Wet	0.0-1.0 Moist 1.0-1.7
Au Train	0.0-2.7: Moist	0.0-1.5:   Moist  1.5-2.7:   Wet	0.0-1.5: Moist 1.5-2.7: Wet	0.0-1.0:   Moist   1.0-2.7:   Wet	0.0-1.5:   Moist  1.5-2.7:   Wet	0.0-2.7: Moist	0.0-0.5:   Dry   0.5-2.7:   Moist	0.0-1.0:   Dry   1.0-2.7:   Moist	0.0-1.5:   Moist   1.5-2.7:   Wet	0.0-1.5 Moist 1.5-2.7 Wet
Gongeau	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5:   Wet 	0.0-0.5: Moist 0.5-1.5: Wet	0.0-1.0:   Moist  1.0-1.5:   Wet	0.0-1.5: Moist	0.0-1.5: Moist	0.0-1.5 Wet
225B: Cusino	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7   Moist 
225D: Cusino	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
226B; Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist

Table 20.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe:
226B: Cusino	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
226D: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry  2.0-6.7:   Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7   Moist 
Cusino	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7   Moist 
226E: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
Cusino	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7   Moist 
226F: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
Cusino	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist	0.0-6.7   Moist 
227A: Halfaday	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0:   Moist   2.0-6.7:   Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.5: Moist 3.5-6.7: Wet	0.0-1.5:   Dry   1.5-4.5:   Moist   4.5-6.7:   Wet	0.0-2.5:   Dry   2.5-5.5:   Moist   5.5-6.7:   Wet	0.0-4.5:   Moist   4.5-6.7:   Wet	0.0-3.0 Moist 3.0-6.7 Wet

Table 20.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
232B: Shelldrake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
233B: Abbaye	0.0-2.7: Moist	0.0-2.7: Moist	0.0-2.0: Moist  2.0-2.7:   Wet	0.0-1.0:   Moist  1.0-2.7:   Wet	0.0-2.0:   Moist  2.0-2.7:   Wet	0.0-2.7: Moist	0.0-1.0:   Dry   1.0-2.7:   Moist	0.0-1.5: Dry  1.5-2.7:  Moist	0.0-2.7:   Moist 	0.0-1.0 Moist 1.0-2.7 Wet
Zeba	0.0-2.0: Moist 2.0-2.8: Wet	0.0-2.0: Moist 2.0-2.8: Wet	0.0-1.5: Moist 1.5-2.8: Wet	0.0-1.0:   Moist  1.0-2.8:   Wet	0.0-0.5:   Moist   0.5-2.8:   Wet	0.0-2.0: Moist 2.0-2.8: Wet	0.0-2.5:   Moist  2.5-2.8:   Wet	0.0-2.8: Moist	0.0-2.5: Moist 2.5-2.8:	0.0-1.0 Moist 1.0-2.8 Wet
234A: Levasseur	0.0-1.1: Moist	0.0-0.5: Moist 0.5-1.1:	0.0-0.5: Moist 0.5-1.1: Wet	0.0-1.1:   Wet 	0.0-0.5:   Moist   0.5-1.1:   Wet	0.0-1.5: Moist 1.5-1.1: Wet	0.0-1.1:   Moist 	0.0-1.1: Moist	0.0-1.5:   Moist  1.5-1.1:   Wet	0.0-1.0 Moist 1.0-1.1 Wet
Burt	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6:   Wet 	0.0-1.6: Wet	0.0-0.5: Moist 0.5-1.6: Wet	0.0-1.0:   Moist   1.0-1.6:   Wet	0.0-1.6:   Moist 	0.0-1.5:   Moist   1.5-1.6:   Wet	0.0-1.6 Wet
235B: Sauxhead	0.0-1.4: Moist	0.0-1.4: Moist	0.0-1.4: Moist	0.0-1.0:   Moist  1.0-1.4:   Wet	0.0-1.0:   Moist  1.0-1.4:   Wet	0.0-1.4: Moist	0.0-0.5: Dry 0.5-1.1: Moist	0.0-1.0: Dry 1.0-1.1: Moist	0.0-1.2:   Moist 	0.0-1.0 Moist 1.0-1.4 Wet
Burt	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6:   Wet 	0.0-1.6: Wet	0.0-0.5: Moist 0.5-1.6: Wet	0.0-1.0:   Moist   1.0-1.6:   Wet	0.0-1.6:   Moist 	0.0-1.5:   Moist   1.5-1.6:   Wet	0.0-1.6 Wet
236B: Waiska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry  2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe:
236D: Waiska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry  2.0-6.7:  Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7   Moist 
237B: Chatham	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-2.0:   Dry  2.0-6.7:   Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7: Moist	  0.0-6.7   Moist 
Davies	0.0-6.7:   Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7:   Wet 	0.0-0.5: Moist 0.5-6.7:	0.0-1.5:   Moist  1.5-6.7:   Wet	0.0-2.0:   Moist  2.0-6.7:   Wet	0.0-1.0:   Moist  1.0-6.7:   Wet	0.0-6.7   Wet 
239B: Longrie	0.0-3.0: Moist	0.0-3.0:   Moist 	0.0-3.0: Moist	0.0-3.0:   Moist 	0.0-3.0:   Moist 	0.0-3.0: Moist	   0.0-1.0:   Dry  1.0-3.0:   Moist	0.0-1.5:   Dry  1.5-6.7:   Moist	0.0-3.0:   Moist 	0.0-3.0   Moist 
Shingleton	0.0-1.4:   Moist 	0.0-1.4:   Moist 	0.0-1.4: Moist	0.0-1.4:   Moist 	0.0-1.4:   Moist 	0.0-1.4:   Moist 	0.0-1.0:   Dry  1.0-1.4:   Moist	0.0-1.4:   Dry 	0.0-1.4:   Moist 	0.0-1.4   Moist 
240F: Trout Bay	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-0.5: Moist 0.5-1.6:	0.0-1.0:   Moist  1.0-1.6:   Wet	0.0-0.5: Moist 0.5-1.6: Wet	0.0-1.6   Wet 
Gongeau	0.0-1.5:   Wet 	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-0.5:   Moist   0.5-1.5:   Wet	0.0-1.0: Moist 1.0-1.5:	0.0-1.5: Moist	0.0-1.5:   Moist 	0.0-1.5   Wet 
Shingleton	0.0-1.4: Moist	0.0-1.4:   Moist 	0.0-1.4: Moist	0.0-1.4: Moist	0.0-1.4:   Moist 	0.0-1.4:   Moist 	0.0-1.0: Dry 1.0-1.4: Moist	0.0-1.4:   Dry 	0.0-1.4:   Moist 	0.0-1.4   Moist 
Rock outcrop.										

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
241: Cathro	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7:	0.0-1.0:   Moist   1.0-6.7:   Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-6.7 Wet
Gay	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5:   Moist  1.5-6.7:   Wet	0.0-2.0:   Moist  2.0-6.7:   Wet	0.0-1.0: Moist 1.0-6.7:	0.0-6.7 Wet
242B: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry   Dry   Z.0-6.7:	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
242D: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
242F: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
243: Markey	0.0-6.7: Wet	0.0-6.7:   Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-1.0:   Moist  1.0-6.7:   Wet	0.0-0.5:   Moist  0.5-6.7:   Wet	0.0-6.7 Wet
245B: Trout Bay	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6: Wet	0.0-1.6:   Wet 	0.0-1.6: Wet	0.0-0.5:   Moist   0.5-1.6:   Wet	0.0-1.0:   Moist   1.0-1.6:   Wet	0.0-0.5:   Moist   0.5-1.6:   Wet	0.0-1.6 Wet
Lupton	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-1.0:   Moist   1.0-6.7:   Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-6.7 Wet

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
245B: Gongeau	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-1.5: Wet	0.0-0.5: Moist 0.5-1.5:	0.0-1.0: Moist 1.0-1.5:	0.0-1.5: Moist	0.0-1.5: Moist	0.0-1.5 Wet
246B: Garlic	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
246D: Garlic	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
246E: Garlic	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
248B: Escanaba	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry  3.0-6.7:  Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
Greylock	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
248D: Escanaba	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
Greylock	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7   Moist 

Table 20.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
248E: Escanaba	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Greylock	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5:   Dry   1.5-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
249B: Sauxhead	0.0-1.4: Moist	0.0-1.4: Moist	0.0-1.4: Moist	0.0-1.0: Moist 1.0-1.4: Wet	0.0-1.0:   Moist  1.0-1.4:   Wet	0.0-1.4: Moist	0.0-0.5: Dry 0.5-1.1: Moist	0.0-1.0:   Dry  1.0-1.1:  Moist	0.0-1.2: Moist	0.0-1.0 Moist 1.0-1.4 Wet
Skandia	0.0-2.2:   Wet	0.0-2.2: Wet	0.0-2.2: Wet	0.0-2.2: Wet	0.0-2.2:   Wet	0.0-2.2: Wet	0.0-0.5: Moist 0.5-2.2: Wet	0.0-1.0: Moist 1.0-2.2: Wet	0.0-0.5: Moist 0.5-2.2:	0.0-2.2 Wet
250B: Chocolay	0.0-2.3: Moist	0.0-2.3: Moist	0.0-2.0: Moist 2.0-2.3: Wet	0.0-1.0: Moist 1.0-2.3:	0.0-2.0:   Moist   2.0-2.3:   Wet	0.0-2.3: Moist	0.0-1.0: Dry 1.0-2.3: Moist	0.0-1.5: Dry 1.5-2.3: Moist	0.0-2.3: Moist	0.0-1.0 Moist 1.0-2.3
Jacobsville	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0: Wet	0.0-3.0:   Wet	0.0-0.5: Moist 0.5-3.0:	0.0-1.0: Moist 1.0-3.0: Wet	0.0-2.0:   Moist  2.0-3.0:   Wet	1.5-3.0: Wet 0.0-1.5: Moist	0.0-3.0 Wet
251B: Greylock	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5:   Dry  1.5-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
251D: Greylock	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
252A: Finch	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0:   Moist   2.0-6.7:   Wet	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7:	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0 Moist 1.0-6.7 Wet
Kinross	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7:   Wet	0.0-0.5: Moist 0.5-6.7:	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5:   Moist  1.5-6.7:   Wet	0.0-2.0: Moist   2.0-6.7:   Wet	0.0-1.5:   Moist   1.5-6.7:   Wet	0.0-6.7 Wet
254C: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
254E: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7   Moist 
254F: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
255D: Wallace	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-1.0:   Dry  1.0-6.7:   Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
256B: Whitewash	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5:   Dry   1.5-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
266A: Spot	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-6.7:   Wet 	0.0-0.5: Moist 0.5-6.7:	0.0-1.5:   Moist  1.5-6.7:   Wet	0.0-2.0:   Moist  2.0-6.7:   Wet	0.0-1.0:   Moist   1.0-6.7:   Wet	0.0-6.7 Wet
Finch	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-0.5:   Dry   0.5-3.0:   Moist   3.0-6.7:   Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0 Moist 1.0-6.7 Wet
267A: Finch	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5:   Moist   1.5-6.7:   Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0:   Moist   2.0-6.7:   Wet	0.0-0.5:   Dry   0.5-3.0:   Moist   3.0-6.7:	0.0-2.0:   Moist   2.0-6.7:   Wet	0.0-1.0 Moist 1.0-6.7 Wet
268C: Munising	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0: Dry 11.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist 	0.0-1.5 Moist 1.5-2.0 Wet 2.0-6.7
Frohling	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5:   Dry   1.5-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist 

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
268C: Cookson	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-1.0:   Dry   1.0-3.0:   Moist	0.0-1.5: Dry 1.5-3.0: Moist	0.0-3.0: Moist	0.0-3.0 Moist
269E: Frohling	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Garlic	0.0-6.7: Moist	0.0-6.7: Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Cookson	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-1.0:   Dry  1.0-3.0:   Moist	0.0-1.5:   Dry  1.5-3.0:   Moist	0.0-3.0: Moist	0.0-3.0 Moist
272C: Munising	0.0-6.7: Moist 	0.0-6.7: Moist 	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.7: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist 	0.0-1.5:   Dry   1.5-6.7:   Moist	0.0-6.7: Moist 	0.0-1.5 Moist 1.5-2.0 Wet 2.0-6.7 Moist
Уаlmer	0.0-6.7: Moist 	0.0-6.7: Moist	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7:	0.0-1.0: Moist 1.0-2.5: Wet 2.5-6.7:	0.0-1.5: Moist 1.5-2.5: Wet 2.5-6.7:	0.0-6.7: Moist 	0.0-2.0:   Dry   2.0-6.7:   Moist 	0.0-3.0:   Dry   3.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0 Moist 2.0-2.5 Wet 2.5-6.7
Frohling	0.0-6.7: Moist	0.0-6.7: Moist	Moist Moist	Moist Moist	Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5:   Dry   1.5-6.7:   Moist	0.0-6.7: Moist	Moist Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May 	June	July	August	September	Octobe
275B: Munising	0.0-6.7: Moist	0.0-6.7:   Moist   Moist 	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-1.0:   Moist   1.0-2.0:   Wet   2.0-6.7:   Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7:   Moist 	0.0-1.5 Moist 1.5-2.0 Wet 2.0-6.7 Moist
Cookson	0.0-3.0:   Moist 	0.0-3.0:   Moist 	0.0-3.0:   Moist 	0.0-3.0: Moist	0.0-3.0:   Moist 	0.0-3.0:   Moist 	0.0-1.0: Dry 1.0-3.0: Moist	0.0-1.5:   Dry  1.5-3.0:   Moist	0.0-3.0: Moist	0.0-3.(   Moist 
281E: Mongo	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
282B: Furlong	0.0-1.8: Moist	0.0-1.8:   Moist 	0.0-1.8: Moist	0.0-1.8:   Moist 	0.0-1.8:   Moist 	0.0-1.8: Moist	0.0-1.0:   Dry  1.0-1.8:   Moist	0.0-1.5: Dry  1.5-1.8:  Moist	0.0-1.8:   Moist 	0.0-1.8   Moist 
Shingleton	0.0-1.4: Moist	0.0-1.4:   Moist 	0.0-1.4: Moist	0.0-1.4:   Moist 	0.0-1.4:   Moist 	0.0-1.4: Moist	0.0-1.0:   Dry  1.0-1.4:   Moist	0.0-1.4:   Dry 	0.0-1.4:   Moist 	0.0-1.4 Moist
282D: Furlong	0.0-1.8: Moist	0.0-1.8:   Moist 	0.0-1.8: Moist	0.0-1.8:   Moist 	0.0-1.8:   Moist 	0.0-1.8: Moist	0.0-1.0:   Dry  1.0-1.8:   Moist	0.0-1.5: Dry  1.5-1.8:  Moist	0.0-1.8:   Moist 	0.0-1.8   Moist 
Shingleton	0.0-1.4: Moist	0.0-1.4:   Moist 	0.0-1.4:   Moist 	0.0-1.4:   Moist 	0.0-1.4:   Moist 	0.0-1.4: Moist	0.0-1.0:   Dry   1.0-1.4:   Moist	0.0-1.4:   Dry 	0.0-1.4:   Moist 	0.0-1.4   Moist 
284B: Steuben	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   1.0-6.7:   Moist	0.0-3.0: Dry  3.0-6.7:  Moist	0.0-6.7:   Moist 	0.0-6.7   Moist 

Table 20.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	   February 	March	April	May	June	July	August	September	Octobe
284B: Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Kalkaska	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
284D: Steuben	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   1.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry   Dry   3.0-6.7:	0.0-6.7: Moist	0.0-6.7 Moist
Kalkaska	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist 
284E: Steuben	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry  1.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
Kalkaska	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7   Moist 

Table 20.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
285B: Halfaday	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.5: Moist 3.5-6.7: Wet	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7:	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7:	0.0-4.5: Moist 4.5-6.7: Wet	0.0-3.( Moist 3.0-6.7 Wet
Kinross	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7:   Wet	0.0-0.5: Moist 0.5-6.7:	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5:   Moist  1.5-6.7:   Wet	0.0-2.0:   Moist  2.0-6.7:   Wet	0.0-1.5:   Moist   1.5-6.7:   Wet	0.0-6.7 Wet
286B: Greylock	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
Cookson	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0:   Moist 	0.0-3.0: Moist	0.0-3.0: Moist	0.0-1.0:   Dry  1.0-3.0:   Moist	0.0-1.5:   Dry   1.5-3.0:   Moist	0.0-3.0:   Moist 	0.0-3.0 Moist
287B: McMaster	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.5: Moist 3.5-6.7: Wet	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7:	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7:	0.0-4.5: Moist 4.5-6.7: Wet	0.0-3.0 Moist 3.0-6.7 Wet
Davies	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5:   Moist  1.5-6.7:   Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist  1.0-6.7:   Wet	0.0-6.7   Wet
290A: Namur Ruse	0.0-0.5: Moist 0.0-1.5:	0.0-0.5: Moist 0.0-1.5: Wet	0.0-0.5: Moist 0.0-1.5: Wet	0.0-0.5: Moist 0.0-1.5: Wet	0.0-0.5: Moist 0.0-1.5: Wet	0.0-0.5: Moist 0.0-0.5: Moist 0.5-1.5:	0.0-0.5: Dry 0.0-1.0: Moist 1.0-1.5: Wet	0.0-0.5: Dry 0.0-1.5: Moist	0.0-0.5: Moist 0.0-1.5: Moist	0.0-0.5 Moist 0.0-1.5 Wet

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April		June	July	August	September	Octobe
292B: Mashek	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist 1.5-3.1: Wet 3.1-6.7:	0.0-1.0: Moist 1.0-3.1: Wet 3.1-6.7: Moist	0.0-1.5: Moist 1.5-3.1: Wet 3.1-6.7: Moist	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-2.0 Moist 2.0-3.1 Wet 3.1-6.7 Moist
296D: Islandlake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
McMillan	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist 
296E: Islandlake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
McMillan	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
297B: Rubicon	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
297D: Rubicon	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
298B: Wurtsmith	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Moist 5.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.5: Moist 3.5-6.7: Wet	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7:	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7:	0.0-4.5: Moist 4.5-6.7: Wet	0.0-3.0 Moist 3.0-6.7 Wet
Deford	0.0-6.7:   Wet 	0.0-6.7:   Wet	0.0-6.7:   Wet	0.0-6.7: Wet	0.0-6.7:   Wet 	0.0-0.5: Moist 0.5-6.7:	0.0-1.5:   Moist   1.5-6.7:   Wet	0.0-2.0:   Moist  2.0-6.7:   Wet	0.0-1.0:   Moist  1.0-6.7:   Wet	0.0-6.7 Wet
299F: Shelldrake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
300F: Shelldrake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
Dune land. 301F: Cookson	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-1.0: Dry 1.0-3.0:	0.0-1.5: Dry 1.5-3.0:	0.0-3.0: Moist	0.0-3.0 Moist
Nykanen	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.2: Moist	0.0-1.0: Moist 1.0-1.2: Wet	0.0-1.2: Moist	0.0-1.2: Moist	Molst 0.0-1.0: Dry 1.0-1.2: Wet	Moist 0.0-1.2: Dry	0.0-1.2: Moist	0.0-1.0 Moist 1.0-1.2 Wet
302B: Dillingham	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 

Table 20.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
302B: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
302D: Dillingham	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Kalkaska	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7   Moist 
302E: Dillingham	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Kalkaska	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0: Dry  2.0-6.7:  Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
302F: Dillingham	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry  3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
303B: Kiva	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

							•			
Map symbol and soil name	January 	February	March  -	April		June		August	September	Octobe
303B: Trenary	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
303D; Kiva	0.0-6.7:   Moist 	  0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-1.0:   Dry   1.0-6.7:   Moist	0.0-1.5:   Dry  1.5-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
Trenary	0.0-6.7:   Moist 	0.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-1.0:   Dry  1.0-6.7:   Moist	0.0-1.0:   Dry  1.0-6.7:   Moist	0.0-1.5:   Dry  1.5-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
303E; Kiva	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Trenary	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.0:   Dry  1.0-6.7:   Moist	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5:   Dry  1.5-6.7:   Moist	0.0-6.7: Moist	0.0-6.7 Moist
305B: Wurtsmith	0.0-5.0: Moist 5.0-6.7: Wet	0.0-5.0: Maist 5.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.5: Moist 3.5-6.7: Wet	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7:	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7:	0.0-4.5: Moist 4.5-6.7: Wet	0.0-3.0 Moist 3.0-6.7 Wet
Meehan	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5:   Moist   0.5-6.7:   Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	Wet 0.0-2.0: Moist 2.0-6.7: Wet	Wet  0.0-0.5:  Dry  0.5-3.0:  Moist  Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0 Moist 1.0-6.7 Wet

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
306C: Deerton	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.0: Dry 2.0-2.1: Moist	0.0-2.1: Dry	0.0-2.1: Moist	0.0-2.1 Moist
Tokiahok	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
Эв же	0.0-1.7: Moist	0.0-1.7: Moist	0.0-1.5: Moist 1.5-1.7:	0.0-1.0: Moist 1.0-1.7:	0.0-0.5: Moist 0.5-1.7:	0.0-1.7: Moist	0.0-1.7: Moist	0.0-1.7: Moist	0.0-1.7: Moist	0.0-1.0 Moist 1.0-1.7 Wet
307B: Rubicon	0.0-10.5: Moist 10.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.7: Moist 9.7-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-10.5: 0.0-2.0: Moist Dry 10.5-15.0: 2.0-12.4: Wet Moist 12.4-15.0		0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.2 Moist 9.2-15.
307D: Rubicon	0.0-10.5: Moist 10.5-15.0: Wet	0.0-10.5:   Moist 10.5-15.0: Wet	0.0-9.7: Moist 9.7-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-10.5:   Moist 10.5-15.0: Wet	0.0-2.0: Dry 2.0-12.4: Moist 12.4-15.0: Wet	0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.2 Moist 9.2-15.0
308B: Rubicon	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Sultz	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist

Table 20.--Soil Moisture Status by Depth--Continued

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Map symbol and soil name	January	February	March	April	Мау	June	July	August	September  -	Octobe
308D: Rubicon	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	   0.0-2.0:   Dry  2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
Sultz	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-2.0:   Dry  2.0-6.7:   Moist	0.0-3.0:   Dry   3.0-6.7:   Moist	0.0-6.7:   Moist 	0.0-6.7 Moist
309B: Rubicon	0.0-7.3: Moist 7.3-15.0: Wet	0.0-7.3: Moist  7.3-15.0:  Wet	0.0-4.8: Moist  4.8-15.0:   Wet	0.0-4.3:   Moist   4.3-15.0:   Wet	0.0-4.3:   Moist   4.3-15.0:  Wet	0.0-5.2: Moist   5.2-15.0:   Wet	0.0-2.0:   Dry   2.0-6.2:   Moist   6.2-15.0:	0.0-3.0: Dry 3.0-7.2: Moist 7.2-15.0:	0.0-6.2: Moist 6.2-15.0: Wet	0.0-4.7 Moist 4.7-15.
309D: Rubicon	0.0-7.3: Moist 7.3-15.0: Wet	0.0-7.3: Moist 7.3-15.0: Wet	0.0-4.8: Moist 4.8-15.0: Wet	0.0-4.3: Moist 4.3-15.0: Wet	0.0-4.3: Moist 4.3-15.0: Wet	0.0-5.2: Moist 5.2-15.0: Wet	Wet  0.0-2.0: Dry 2.0-6.2: Moist 62-15.0:	Wet  0.0-3.0: Dry 30-7.2: Moist 72-15.0:	0.0-6.2: Moist 6.2-15.0: Wet	0.0-4.7 Moist 4.7-15. Wet
310B: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	Wet   0.0-2.0:   Dry   2.0-6.7:   Moist	Wet  0.0-3.0:  Dry  3.0-6.7:  Moist	0.0-6.7: Moist	0.0-6.7 Moist
310D: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
310E: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7:   Moist 	0.0-6.7: Moist	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
311B: Kalkaska	0.0-10.5: Moist 10.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.7: Moist 9.7-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet		0.0-2.0:   0.0-3.0: Dry   Dry 2.0-12.4:   3.0-12.5: Moist   Moist   12.4-15.0:	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.2 Moist 9.2-15.
311D: Kalkaska	0.0-10.5: Moist 10.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.7: Moist 9.7-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-10.5:   Moist 10.5-15.0:   Wet		Wet   Wet   Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.2 Moist 9.2-15.0
312B: Islandlake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
312D: Islandlake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
313B: Kalkaska	0.0-7.3: Moist 7.3-15.0: Wet	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
314B: Blue Lake	0.0-10.5: Moist 10.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.7: Moist 9.7-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-2.0:   0.0-3.0:   Dry   Dry   2.0-12.4:   3.0-12.5:   Moist   Moist   Mot   Mot   Wet   Wet   Wet   Mot   Mot   Mot   Wet   Mot	0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0:	0.0-9.4: Moist 9.4-15.0: Wet	0.0-7.9 Moist 7.9-15.

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
315B: Blue Lake	0.0-7.3: Moist 7.3-15.0: Wet	0.0-7.3: Moist 7.3-15.0: Wet	0.0-4.8: Moist 4.8-15.0: Wet	0.0-4.3: Moist 4.3-15.0: Wet	0.0-4.3: Moist 4.3-15.0: Wet	0.0-5.2: Moist 5.2-15.0: Wet	0.0-2.0: Dry 2.0-6.2: Moist 6.2-15.0:	0.0-3.0: Dry 3.0-7.2: Moist 7.2-15.0: Wet	0.0-6.2: Moist 6.2-15.0: Wet	0.0-4.7 Moist 4.7-15. Wet
316B: Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
316D: Blue Lake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
317B: Kalkaska	0.0-10.5: Moist 10.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.7: Moist 9.7-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-10.5:   Moist   10.5-15.0:   Wet	0 7 7		0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.2 Moist 9.2-15. Wet
317D: Kalkaska	0.0-10.5: Moist 10.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.7: Moist 9.7-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0 7 7		0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.2 Moist 9.2-15. Wet
318B: Islandlake	0.0-10.5: Moist 10.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.7: Moist 9.7-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	Wet 0.0-2.0: Dry 2.0-12.4: Moist 12.4-15.0: Wet	wer 0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0:	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.2 Moist 9.2-15. Wet

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	Мау	June	July	August	September	Octobe
318D: Islandlake	0.0-10.5: Moist 10.5-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-9.7: Moist 9.7-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-9.2: Moist 9.2-15.0: Wet	0.0-10.5: Moist 10.5-15.0: Wet	0.0-2.0: Dry 2.0-12.4: Moist 12.4-15.0: Wet	0.0-3.0: Dry 3.0-12.5: Moist 12.5-15.0: Wet	0.0-9.4: Moist 9.4-15.0: Wet	0.0-7.9 Moist 7.9-15.
319B: Islandlake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
319D: Islandlake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist
319E: Islandlake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
319F: Islandlake	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist 
320B: Kalkaska	0.0-7.3: Moist 7.3-15.0: Wet	0.0-7.3: Moist 7.3-15.0: Wet	0.0-4.8: Moist 4.8-15.0: Wet	0.0-4.3: Moist 4.3-15.0: Wet	0.0-4.3: Moist 4.3-15.0: Wet	0.0-5.2: Moist 5.2-15.0: Wet	0.0-2.0: Dry 2.0-6.2: Moist 6.2-15.0: Wet	0.0-3.0: Dry 3.0-7.2: Moist 7.2-15.0: Wet	0.0-6.2: Moist 6.2-15.0: Wet	0.0-4.7 Moist 4.7-15.
321B: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist 	0.0-6.7: Moist	0.0-6.7: Moist	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7 Moist

Table 20. -- Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	Octobe
321B: Deerton	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1:   Moist 	0.0-2.1: Moist	0.0-2.1:   Moist 	0.0-2.1:   Moist 	0.0-2.0:   Dry   2.0-2.1:   Moist	0.0-2.1:   Dry 	0.0-2.1:   Moist 	0.0-2.1 Moist
321D: Kalkaska	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7: Moist	0.0-6.7:   Moist 	0.0-2.0:   Dry   2.0-6.7:   Moist	0.0-3.0:   Dry  3.0-6.7:   Moist	0.0-6.7: Moist	0.0-6.7   Moist 
Deerton	0.0-2.1:   Moist 	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.1: Moist	0.0-2.0:   Dry   2.0-2.1:   Moist	0.0-2.1:   Dry 	0.0-2.1: Moist	0.0-2.1 Moist

### Table 21.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

			Wa	ter tabl	e		Ponding		Floo	
Map symbol and soil name	Hydro-  logic  group	Months	Upper limit	Lower   limit 	Kind of   water   table	Surface    water   depth	Duration	Frequency   	Duration   	Frequency   
		İ	Ft	Ft	İ	Ft		Ī	İ	İ
	ļ							!		
.0:										
Beaches	A	Jan-Dec	>6.0	>6.0				None	 	None
.1C:	İ				 	 		l I	! 	
Deer Park	A	Jan-Dec	>6.0	>6.0		i i		None	i	None
		[ [						[	Į.	
.1E:										
Deer Park	A	Jan-Dec	>6.0	>6.0				None		None
.1F:	l I			 		 		 	I I	
Deer Park	   A	Jan-Dec	>6.0	>6.0				None		None
	į	j j		į	İ	į į		į	j	İ
.2B:										
Rubicon	A	Jan-Dec	>6.0	>6.0				None		None
2D -										
.2D: Rubicon	   A	  Jan-Dec	>6.0	   >6.0	 	 		None	 	None
Rub I con			20.0	20.0		 		None	I	140116
.2E:	İ	į į			İ	į i		İ	İ	İ
Rubicon	A	Jan-Dec	>6.0	>6.0		i i		None		None
								[		
.3B:										
Kalkaska	A	Jan-Dec	>6.0	>6.0				None		None
.3D:	l I				 	 		 	 	
Kalkaska	A	Jan-Dec	>6.0	>6.0		i i		None	i	None
.3E:									!	
Kalkaska	A	Jan-Dec	>6.0	>6.0				None		None
.5A:	l I			 	 	 		 	l I	1
Croswell	   A	Jan-Feb	5.0	>6.0	Apparent	 		None		None
	į	Mar	2.5	>6.0	Apparent	: :		None	j	None
		Apr-May	2.0	>6.0	Apparent			None		None
		Jun	3.5	>6.0	Apparent	: :		None		None
		Jul	4.5	>6.0	Apparent	: :		None		None
	 	Aug Sep	5.5 4.5	>6.0   >6.0	Apparent  Apparent	: :		None   None	 	None None
	 	Oct-Nov	3.0	>6.0	Apparent	: :		None	 	None
	İ	Dec	4.0	>6.0	Apparent	: :		None		None
	İ	į į		İ		į į		İ	İ	İ
.6A:	ļ			[	ļ	ļ		ļ.		
Paquin	A	Jan-Feb	5.0	>6.0	Apparent			None		None
		Mar	2.5	>6.0	Apparent			None		None
	I I	Apr-May Jun	2.0 3.5	>6.0   >6.0	Apparent  Apparent			None None	 	None None
	İ	Jul	4.5	>6.0	Apparent			None	 	None
	İ	Aug	5.5	>6.0	Apparent			None		None
	į	Sep	4.5	>6.0	Apparent			None		None
	I	Oct-Nov	3.0	>6.0	Apparent	j j		None	i	None
	I	1000 1.01	4.0	>6.0	PP			1.0110	1	

Table 21.--Water Features--Continued

			Wa	ter tabl	е		Ponding		Floo	ding
Map symbol	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water	water				
	group				table	depth				<u> </u>
			Ft	Ft		Ft				
17A:	l I			 	l I	 		l I		
Au Gres	   B	Jan-Feb	1.5	   >6.0	Apparent			None		None
	İ	Mar	1.0	>6.0	Apparent			None		None
	İ	Apr-May	0.5	>6.0	Apparent			None		None
	İ	Jun	1.0	>6.0	Apparent			None		None
	İ	Jul	2.0	>6.0	Apparent			None		None
	İ	Aug	3.0	>6.0	Apparent			None		None
	İ	Sep	2.0	>6.0	Apparent			None		None
	İ	Oct-Nov	1.0	>6.0	Apparent			None		None
	İ	Dec	1.5	>6.0	Apparent			None		None
18:	7/5	Ton 8-2-1	0 0		]			No		N
Kinross	A/D	Jan-Feb	0.0	>6.0	Apparent		 Dwief	None		None
	I I	Mar	0.0	>6.0	Apparent		Brief	Occasional		None
		Apr	0.0	>6.0	Apparent		Long	Frequent		None
		May	0.5	>6.0	Apparent		Long	Frequent		None
		Jun	0.5	>6.0	Apparent			None		None
		Jul	1.5	>6.0	Apparent			None		None
		Aug	2.0	>6.0	Apparent			None		None
		Sep	1.5	>6.0	Apparent			None		None
		Oct-Nov	0.0	>6.0	Apparent	:	Brief	Frequent		None
	l I	Dec	0.0	>6.0	Apparent			None		None
19:								i		
Deford	A/D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent	0.5	Brief	Occasional		None
		Apr-May	0.0	>6.0	Apparent	0.5	Long	Frequent		None
		Jun	0.5	>6.0	Apparent			None		None
		Jul	1.5	>6.0	Apparent			None		None
		Aug	2.0	>6.0	Apparent			None		None
		Sep	1.0	>6.0	Apparent			None		None
	ĺ	Oct-Nov	0.0	>6.0	Apparent	0.5	Brief	Frequent		None
	ĺ	Dec	0.0	>6.0	Apparent			None		None
013.										
21A: Ingalls	   C	  Jan-Feb	1.5	   >6.0	Apparent	 		None		None
5	-	Mar	1.0	>6.0	Apparent			None		None
	 	Apr-May	0.5	>6.0	Apparent			None		None
	 	Jun	1.0	>6.0	Apparent			None		None
	 	Jul	2.0	>6.0	Apparent			None		None
	 	Aug	3.0	>6.0	Apparent			None		None
	! 	Sep	2.0	>6.0	Apparent			None		None
	 	Oct-Nov	1.0	>6.0	Apparent			None		None
	İ	Dec	1.5	>6.0	Apparent			None		None
	ĺ	į į		ĺ	İ			ĺ		İ
24B:								N		
Munising	B	Jan-Feb		>6.0				None		None
		Mar	1.5	2.0	Perched			None		None
		Apr	1.0	2.0	Perched			None		None
		May	1.5	2.0	Perched			None		None
		Jun-Sep		>6.0				None		None
		Oct-Nov	1.5 >6.0	2.0 >6.0	Perched			None		None None
		Dec						None		

Table 21.--Water Features--Continued

			Wa	ter tabl	e		Ponding		Floo	ding
Map symbol		Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				ļ
	group				table	depth		<u> </u>		<u> </u>
			Ft	Ft		Ft				
					!					ļ
5B:					!					ļ
Munising	В	Jan-Feb		>6.0				None		None
		Mar	1.5	2.0	Perched			None		None
		Apr	1.0	2.0	Perched			None		None
		May	1.5	2.0	Perched			None		None
		Jun-Sep		>6.0				None		None
	 	Oct	2.0	2.5	Perched   Perched	 	 	None	 	None
	 	Nov	1.5	2.0		 	 	None	 	None
	l I	Dec	>6.0	>6.0				None		None
Yalmer	I   в	Jan-Feb	>6.0	   >6.0		 	 	None	 	None
raimer	<b>-</b>	Mar	1.5	2.5	Perched	 	 	None	 	None
	l I	:	1.0	2.5	Perched	 	 	None	 	None
	l I	Apr	1.5	2.5	Perched	 		None	 	None
	 	May		!		 			 	1
	 	Jun-Sep		>6.0	!	!!!		None		None
	 	Oct	2.0	2.5	Perched			None		None
	 	Nov	1.5	2.5	Perched			None		None
	 	Dec	>6.0	>6.0				None		None
ED.	 			 	1	 			l I	1
5D:		   Tam						) 		
Munising	В	Jan-Feb		>6.0				None		None
		Mar	1.5	2.5	Perched			None		None
		Apr	1.0	2.5	Perched			None		None
		May	1.5	2.5	Perched			None		None
		Jun-Sep		>6.0				None		None
		Oct	2.0	2.5	Perched			None		None
		Nov	1.5	2.5	Perched			None		None
		Dec	>6.0	>6.0				None		None
Yalmer	В	Jan-Feb	>6.0	>6.0				None		None
		Mar	1.5	2.5	Perched			None		None
		Apr	1.0	2.5	Perched			None		None
		May	1.5	2.5	Perched			None		None
		Jun-Sep	>6.0	>6.0				None		None
		Oct	2.0	2.5	Perched			None		None
		Nov	1.5	2.5	Perched			None		None
		Dec	>6.0	>6.0				None		None
1D:										
Trenary	В	Jan-Dec	>6.0	>6.0				None		None
3:										
Ensley	B/D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent	0.5	Brief	Occasional		None
		Apr-May	0.0	>6.0	Apparent	0.5	Long	Frequent		None
		Jun	0.5	>6.0	Apparent	0.5	Brief	Occasional		None
		Jul	1.0	>6.0	Apparent	j i		None		None
		Aug	2.0	>6.0	Apparent	j i		None		None
		Sep	1.5	>6.0	Apparent	j i		None		None
		Oct	0.5	>6.0	Apparent	0.5	Brief	Frequent		None
		Nov	0.0	>6.0	Apparent	: :	Brief	Frequent		None
	İ	Dec	0.0	>6.0	Apparent	: :		None		None
	İ	į i		İ	i	į i		į	İ	i
5B:	İ	į i		İ	į	į i		į	İ	i
Munising, calcareous	İ	į i		İ	İ	<u> </u>		i	İ	i
substratum	B	Jan-Feb	>6.0	>6.0				None		None
	i	Mar	1.5	2.0	Perched			None		None
	İ	Apr	1.0	2.0	Perched			None		None
	i I	May	1.5	2.0	Perched			None		None
	ı İ	Jun-Sep		>6.0			 	None	 	None
	I I	Oct-Nov	1.5	2.0	Perched	 		None		None
	I I	:				 				1
	I	Dec	>6.0	>6.0		! !		None		None

Table 21.--Water Features--Continued

			Wa	ter tabl			Ponding		Floo	ding
Map symbol	: -	Months	Upper	Lower		Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water	water				
	group				table	depth		<u> </u>	<u> </u>	<u> </u>
	!	!!!	Ft	Ft		Ft				
	!	!!!								
35B:	!	!!!								
Yalmer, calcareous	!									
substratum	В	Jan-Feb		>6.0				None		None
	!	Mar	1.5	2.5	Perched			None		None
	!	Apr	1.0	2.5	Perched			None		None
	!	May	1.5	2.5	Perched			None		None
	!	Jun-Sep		>6.0				None		None
	!	Oct	2.0	2.5	Perched			None		None
	!	Nov	1.5	2.5	Perched			None		None
	!	Dec	>6.0	>6.0				None		None
T-111										
Frohling, calcareous	   P		.6.0		1	 		Ne	l I	   N
substratum	B	Jan-Dec	>6.0	>6.0				None	 	None
37B:	 			 		 			 	
Grand Sable	   A	  Jan-Dec	>6.0	>6.0		 		None	 	None
	i				i				i I	
37E:	i	į ;						i	' 	
Grand Sable	A	Jan-Dec	>6.0	>6.0	i	i i		None	i	None
	i	i i		İ	İ	i i		į	İ	İ
38B:	i	i i		İ	İ	i i		į		İ
Rhody	D	Jan-Feb	0.0	3.0	Perched	i i		None		None
-	i	Mar	0.0	3.0	Perched	0.5	Brief	Occasional	i	None
	i	Apr-May	0.0	3.0	Perched	0.5	Long	Frequent		None
	i	Jun	0.5	3.0	Perched			None		None
	i	Jul	1.0	3.0	Perched			None		None
	i	Aug	2.0	3.0	Perched			None		None
	i	Sep	1.5	3.0	Perched			None		None
	i	Oct-Nov		3.0	Perched	0.5	Brief	Frequent		None
	i	Dec	0.0	3.0	Perched			None		None
	i	i i		İ	İ	i i		į		İ
Towes	C	Jan-Feb	2.0	2.2	Perched	i i		None	i	None
	İ	Mar	1.5	2.2	Perched	i i		None		None
	i	Apr	1.0	2.2	Perched	i i		None		None
	i	May	0.5	2.2	Perched	i i		None		None
	İ	Jun	2.0	2.2	Perched	i i		None		None
	İ	Jul-Sep	>6.0	>6.0		i i		None		None
	İ	Oct-Nov	1.0	2.2	Perched	i i		None		None
	į	Dec	1.5	2.2	Perched	i i		None		None
40B:										
Waiska, very stony	A	Jan-Dec	>6.0	>6.0				None		None
								ļ		
42:										
Davies	D	Jan-Feb		>6.0	Apparent		 D	None		None
	1	Mar	0.0	>6.0	Apparent		Brief	Occasional		None
	1	Apr-May		>6.0	Apparent	: :	Long	Frequent		None
	1	Jun	0.5	>6.0	Apparent			None		None
	1	Jul	1.5	>6.0	Apparent			None		None
		Aug	2.0	>6.0	Apparent			None		None
		Sep	1.0	>6.0	Apparent			None		None
	1	Oct-Nov	0.0	>6.0	Apparent	0.5	Brief	Frequent		None
	!	Dec	0.0	>6.0	Apparent			None		None

Table 21.--Water Features--Continued

	I		Wat	ter tabl		<u> </u>	Ponding		Floo	ding
		Months	Upper	Lower	1	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				
	group	1	77.	===	table	depth		1		1
	l I		Ft	Ft		Ft		 		1
6:	l I			 						
Jacobsville, very				! 	i			i		ì
stony	   D	Jan-Feb	0.0	3.0	Perched			None		None
Beeny	2	Mar	0.0	3.0	Perched	0.5	Brief	Occasional		None
	l I	Apr-May	0.0	3.0	Perched	0.5	Long	Frequent		None
	l I	Jun	0.5	3.0	Perched			None		None
	l I		1.0	!	1		 	None		None
	 	Jul		3.0	Perched		 			1
	 	Aug	2.0	3.0	Perched		 	None		None
	 	Sep	1.5	3.0	Perched			None		None
	 	Oct-Nov		3.0	Perched	0.5	Brief	Frequent		None
	l I	Dec	0.0	3.0	Perched			None		None
7C:								i		
Deerton	A	Jan-Dec	>6.0	>6.0				None		None
Au Train	   D	   Jan	>6.0	   >6.0				None		None
	i	Feb-Mar	1.5	2.7	Perched			None		None
	İ	Apr	1.0	2.7	Perched			None		None
	 	May	1.5	2.7	Perched			None		None
	l I	Jun-Aug		>6.0				None		None
	 	Sep-Oct	1.5	2.7	Perched		 	None		None
	 	Nov	1.0	2.7	Perched		 	None		None
	 	Dec	1.5	2.7	Perched			None		None
	l I	l Dec	1.5	2.7	Ferched		 	None		None
7E:	İ									İ
Deerton	A	Jan-Dec	>6.0	>6.0				None		None
Au Train	D	Jan	>6.0	>6.0				None		None
		Feb-Mar	1.5	2.7	Perched			None		None
		Apr	1.0	2.7	Perched			None		None
		May	1.5	2.7	Perched			None		None
		Jun-Aug	>6.0	>6.0				None		None
		Sep-Oct	1.5	2.7	Perched			None		None
		Nov	1.0	2.7	Perched			None		None
		Dec	1.5	2.7	Perched			None		None
8:	l I			 		 		l I		1
Burt	   D	Jan-Feb	0.0	1.6	Perched			None		None
	İ	Mar	0.0	1.6	Perched	0.5	Brief	Occasional		None
	İ	Apr-May		1.6	Perched	0.5	Long	Frequent		None
		Jun	0.5	1.6	Perched			None		None
		Jul	1.0	1.6	Perched			None		None
	! 	Aug	>6.0	>6.0				None		None
	 	Sep	1.5	1.6	Perched			None		None
	 	Oct-Nov		1.6	Perched	0.5	Brief	Frequent		None
	İ	Dec	0.0	1.6	Perched			None		None
	į			į		İ				
9B:	ļ	ļ		ļ		<u> </u>		[		ļ
Cookson	В	Jan-Dec	>6.0	>6.0				None		None
1:	 			 						1
ı: Nahma	l D	  Jan-Feb	0.0	2.5	Perched			None		None
	, – 	Mar	0.0	2.5	Perched	0.5	Brief	Occasional		None
	İ	Apr-May		2.5	Perched	0.5	Long	Frequent		None
	I I	Jun	0.5	2.5	Perched		Hong 	None		None
	I I			2.5	1					1
	I I	Jul	1.0		Perched			None		None
	I I	Aug	2.0	2.5	Perched			None		None
		Sep	1.5	2.5	Perched			None		None
	ļ	Oct-Nov	0.0	2.5	Perched	0.5	Brief	Frequent		None
	I	Dec	0.0	2.5	Perched			None		None

Table 21.--Water Features--Continued

	I		Wa:	ter tabl	e	<u> </u>	Ponding		Floo	aing
Map symbol	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				
	group				table	depth				
			Ft	Ft		Ft				
1:	!									
Ruse	D	Jan-Feb	0.0	1.2	Perched			None		None
		Mar	0.0	1.2	Perched	0.5	Brief	Occasional		None
		Apr-May		1.2	Perched	0.5	Long	Frequent		None
		Jun	0.5	1.2	Perched			None		None
		Jul	1.0	1.2	Perched			None		None
		Aug-Sep	>6.0	>6.0				None		None
		Oct-Nov	0.0	1.2	Perched	0.5	Brief	Frequent		None
		Dec	0.0	1.2	Perched			None		None
2B:										
Summerville	D	Jan-Dec	>6.0	>6.0				None		None
7:										
Carbondale	D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent		None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
		Jul	0.5	>6.0	Apparent			None		None
	İ	Aug	1.0	>6.0	Apparent			None		None
	İ	Sep	0.5	>6.0	Apparent			None		None
	i	Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
	i	Dec	0.0	>6.0	Apparent			None	i	None
	i	į i		İ	i			i	İ	i
Lupton	D	Jan-Feb	0.0	>6.0	Apparent			None		None
<u>-</u>	i -	Mar	0.0	>6.0	Apparent			Frequent		None
	i	Apr-May		>6.0	Apparent		•	Frequent		None
		Jun	0.0	>6.0	Apparent			Frequent	 	None
	1	Jul	0.5	>6.0	Apparent			None	 	None
		:			:		 		 	!
		Aug	1.0	>6.0	Apparent			None	!	None
		Sep	0.5	>6.0	Apparent			None		None
		Oct-Nov	0.0	>6.0	Apparent			Frequent		None
		Dec	0.0	>6.0	Apparent			None		None
<b></b>	5	   Ten   Tel			1.3	 				
Tawas	D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent		•	Frequent		None
		Apr-May	0.0	>6.0	Apparent			Frequent		None
	!	Jun	0.0	>6.0	Apparent			Frequent		None
		Jul	0.5	>6.0	Apparent			None		None
		Aug	1.0	>6.0	Apparent			None		None
		Sep	0.5	>6.0	Apparent			None		None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
		Dec	0.0	>6.0	Apparent			None		None
8:										
Dawson	D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
		Apr-May	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent		None
	İ	Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
	i	Jul-Aug	0.5	>6.0	Apparent			None		None
	i	Sep	0.0	>6.0	Apparent			None		None
	i	Oct	0.0	>6.0	Apparent		Brief	Frequent	i	None
	i	Nov	0.0	>6.0	Apparent		•	Frequent		None
	i	Dec	0.0	>6.0	Apparent			Frequent		None
	i						<b>_</b>		İ	
Greenwood	   D	Jan-Mar	0.0	   >6.0	Apparent	0.0-0 5	Brief	Frequent	 	None
	-	Apr-May		>6.0	Apparent		•	Frequent	 	None
	1							Frequent	!	None
	1	Jun	0.0	>6.0	Apparent		•			
	1	Jul-Aug		>6.0	Apparent			None		None
	1	Sep	0.0	>6.0	Apparent		 Dud - 6	None		None
	1	Oct	0.0	>6.0	Apparent			Frequent		None
	1	Nov	0.0	>6.0	Apparent			Frequent		None
	1	Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None

Table 21.--Water Features--Continued

W 1 2	   ** 3	1 1		ter tabl		l	Ponding		Floo	
Map symbol		Months	Upper	Lower		Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water	 			
	group			   E-	table	depth	<u> </u>	1		1
	l I	 	Ft	Ft		Ft	 	 		1
8:	l I	 		l I	1	 	l I			1
Loxley	   D	  Jan-Mar	0.0	   >6.0	Apparent	   0 0-0 5	Brief	   Frequent		None
nowiey	<b>D</b>	Apr-May	0.0	>6.0	Apparent		Long	Frequent		None
	l I	Jun	0.0	>6.0	Apparent		Brief	Frequent		None
	l I	Jul-Aug	0.5	>6.0	Apparent			None		None
	! 	Sep	0.0	>6.0	Apparent			None		None
	 	Oct	0.0	>6.0	Apparent		   Brief	Frequent		None
	! 	Nov	0.0	>6.0	Apparent			Frequent		None
	! 	Dec	0.0	>6.0	Apparent		Brief	Frequent		None
	! 									
9:	! 	i i			i			i		
Chippeny	B/D	Jan-Feb	0.0	2.3	Perched			None		None
	2,2	Mar	0.0	2.3	Perched	1	Brief	Occasional		None
	! 	Apr-May	0.0	2.3	Perched		Long	Frequent		None
	! 	Jun	0.5	2.3	Perched			None		None
	! 	Jul	1.0	2.3	Perched			None		None
	! 	Aug	2.0	2.3	Perched			None		None
	l I	Sep	1.5	2.3	Perched	 	 	None		None
	l I	Oct-Nov	0.0	2.3	Perched	!	Brief	Frequent		None
	l I	Dec	0.0	2.3	Perched			None		None
	l I	200	0.0	2.3	l	l I	! 	110110		110110
Nahma	   D	Jan-Feb	0.0	2.5	Perched			None		None
TO THE STATE OF THE STATE OF THE STATE OF TH	1	Mar	0.0	2.5	Perched	0.5	Brief	Occasional		None
	l I	Apr-May	0.0	2.5	Perched	0.5	Long	Frequent		None
	 	Jun	0.5	2.5	Perched			None		None
	l I	Jul	1.0	2.5	Perched			None		None
	l I	Aug	2.0	2.5	Perched		 	None		None
	l I	: - :	1.5	2.5	Perched		 	None		None
	l I	Sep		2.5		!	!			None
	l I	Oct-Nov	0.0	2.5	Perched	0.5	Brief	Frequent		
	l I	Dec	0.0	4.5	Perched			None		None
0:	l I			 		 	 			1
Histosols	   D	  Jan-Dec	0.0	   >6.0	Annarent	   0 0-1 0	  Very long	Frequent		None
MID CODOLD	5		0.0	20.0			tery rong	l		
Aquents	   D	Jan-Dec	0.0	>6.0	Apparent	0.0-1.0	  Very long	Frequent		None
	i -									
1:	İ	i i		İ	i	İ		i i		İ
Pits	A	Jan-Dec	>6.0	>6.0	j		i	None		None
	İ				i	İ				
2F:	İ	i i		İ	i	İ		i i		İ
Udipsamments	A	Jan-Dec	>6.0	>6.0	i		i	None		None
-	İ	i i		İ	i	İ	İ	į i		İ
Udorthents	A	Jan-Dec	>6.0	>6.0	i		i	None		None
	İ	i i		İ	i	İ	İ	į i		İ
4B:	İ	i i		İ	İ	İ	İ	į i		İ
Kiva	A	Jan-Dec	>6.0	>6.0			i	None		None
	İ	i i		İ	İ	İ	İ	į i		i
4D:	İ	i i		İ	İ	İ	İ	į i		i
Kiva	A	Jan-Dec	>6.0	>6.0	j		i	None		None
	İ	i i		İ	İ	İ	İ	į i		i
5D:	İ	i i		İ	İ	İ	İ	į i		i
Jeske, bedrock terrace	D	Jan	1.0	1.7	Perched		i	None		None
	i İ	Feb-Mar	0.5	1.7	Perched			None		None
		Apr	0.0	1.7	Perched			None		None
		May	0.5	1.7	Perched	 	 	None		None
	i İ	Jun	1.5	1.7	Perched	 		None		None
	i İ	Jul-Aug		>6.0		 		None		None
	! 	Sep	1.5	1.7	Perched		 	None		None
	! 	Sep	1.0	1.7	Perched		 	None		None
	! 	Nov	0.5	1.7	Perched	 	 	None		None
	I	: :		1.7	Perched	!		:		1
	l	Dec	1.0					None		None

Table 21.--Water Features--Continued

			Wa:	ter tabl	e		Ponding		Floo	ding
Map symbol	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic  group		limit 	limit 	water   table	water   depth			 	
	İ	İ	Ft	Ft	<u> </u>	Ft		<u> </u>	İ	İ
55D:				 						
Gongeau, bedrock			l I	 	1				 	
terrace	   D	Ton Morr	0.0	1.5	Perched			None		None
terrace	5	Jan-May   Jun	0.5	1.5	Perched			None	l	None
		Jul	1.0	1.5	Perched			None	l	None
				>6.0					l	None
		Aug-Sep	>6.0   0.0	1.5	Perched			None   None	 	None
	 		0.0	1.5	Perched			None		None
Deerton, bedrock	į	į	İ	j	İ	į į		İ	j	İ
terrace	A	Jan-Dec	>6.0	>6.0				None		None
65F: Jeske, bedrock terrace	   D	   Jan	   1.0	   1.7	Perched			None	 	None
000110, 200110011 0011100	-	Feb-Mar	0.5	1.7	Perched			None		None
	i	Apr	0.0	1.7	Perched			None		None
	i	May	0.5	1.7	Perched	i i		None		None
	i	Jun	1.5	1.7	Perched	i i		None		None
	i	Jul-Aug		>6.0		i i		None		None
	i	Sep	1.5	1.7	Perched	i i		None		None
	i	Oct	1.0	1.7	Perched	i i		None		None
	i	Nov	0.5	1.7	Perched	i i		None		None
	İ	Dec	1.0	1.7	Perched	i i		None		None
	[							ļ		
Gongeau, bedrock										
terrace	D	Jan-May	0.0	1.5	Perched			None		None
		Jun	0.5	1.5	Perched			None		None
		Jul	1.0	1.5	Perched			None		None
		Aug-Sep	>6.0   0.0	>6.0   1.5	Perched			None None	 	None None
	 		0.0 	1.5	Perched			None		None
Deerton, bedrock	İ	i		İ	İ	j i		İ		İ
terrace	A	Jan-Dec	>6.0	>6.0				None		None
een.				 					 	
66D: Ruse, bedrock terrace	   D	  Jan-May	0.0	   1.1	Perched			None	 	None
Ruse, Dedrock terrace	עון	Jun	0.5	1.1	Perched			None		None
		Jul	1.0	1.1	Perched			None	 	None
		Aug-Sep		>6.0				None		None
		Oct-Dec	0.0	1.1	Perched			None		None
			0.0		lerched			None	 	None
Ensign, bedrock	İ	j	İ	İ	İ	į į		İ	İ	İ
terrace	D	Jan-Mar	>6.0	>6.0				None		None
		Apr	1.0	1.2	Perched			None		None
		May		1.2	Perched			None		None
		Jun-Sep		>6.0				None		None
		Oct-Nov	1.0	1.2	Perched			None		None
		Dec	>6.0	>6.0				None		None
Nykanen, bedrock			 	 					 	1
terrace	   D	  Jan-Mar	   >6.0	   >6.0				None		None
	i	Apr	1.0	1.2	Perched	i i		None		None
	i	May-Jun		>6.0				None		None
	i	Jul	1.0	1.2	Perched	i i		None		None
	i	Aug-Sep		>6.0		i i		None		None
	i	Oct	1.0	1.2	Perched	i i		None		None
	i	Nov-Dec		>6.0		i i		None	i	None
	 	Nov-Dec	>6.0 	>6.0 				None		Nor

Table 21.--Water Features--Continued

	1			ter tabl		<u> </u>	Ponding		Floo	
Map symbol	: -	Months	Upper	Lower		Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic  group		limit 	limit 	water   table	water   depth		 	 	 
			Ft	Ft		Ft				
6F:	 			 		 		 	 	 
Ruse, bedrock terrace	D	Jan-May	0.0	1.1	Perched			None		None
	į	Jun	0.5	1.1	Perched			None	j	None
		Jul	1.0	1.1	Perched			None		None
		Aug-Sep	>6.0	>6.0				None		None
	!	Oct-Dec	0.0	1.1	Perched			None		None
Ensign, bedrock	 	 		 		 		 	 	 
terrace	D	Jan-Mar	>6.0	>6.0	i			None		None
	i	Apr	1.0	1.2	Perched			None		None
	i	May	0.5	1.2	Perched			None		None
	i	Jun-Sep		>6.0				None		None
	i	Oct-Nov	1.0	1.2	Perched			None	i	None
	į	Dec	>6.0	>6.0		i		None		None
Nykanen, bedrock				 		 		 	 	 
terrace	   D	Jan-Mar	>6.0	>6.0				None		None
	İ	Apr	1.0	1.2	Perched			None		None
		May-Jun	>6.0	>6.0				None		None
		Jul	1.0	1.2	Perched			None		None
		Aug-Sep	>6.0	>6.0				None		None
		Oct	1.0	1.2	Perched			None		None
		Nov-Dec	>6.0	>6.0				None		None
8. Pits, quarry	   			   	 	   		 		   
9B: Escanaba	     A	    Jan-Dec	     >6.0	     >6.0		   		     None	   	     None
	i			İ	İ	İ			i	
1A: Evart	   D	   Jan	   0.0	   >6.0	Annament	 	 	   None		   None
Evait	עון	Feb	0.0	>6.0	Apparent		 	None	!	Rare
	 	Mar	0.0	>6.0	Apparent   Apparent		Brief	Frequent	Very brief   Brief	Occasion
	 	Apr-May	0.0	>6.0	Apparent		Long	Frequent	Long	Freque
	 	Jun	0.0	>6.0	Apparent		Brief	Frequent	Brief	Occasion
	 	Jul	0.5	>6.0	Apparent		LIEI	None		None
		Aug	1.0	>6.0	Apparent			None		None
		Sep	0.5	>6.0	Apparent			None	Brief	Occasion
	i	Oct	0.0	>6.0	Apparent		Brief	Frequent	Brief	Occasion
	i	Nov	0.0	>6.0	Apparent		Brief	Frequent	Very brief	Rare
	İ	Dec	0.0	>6.0	Apparent			None		None
Ch					  Apparent	 		Name		 
Sturgeon	C	Jan	1.5	>6.0				None		None Rare
	 	Feb	1.5	>6.0	Apparent		 	None	Very brief   Brief	•
		Mar	1.5	>6.0	Apparent			None		Occasion
	 	Apr-May   Jun	0.5	>6.0	Apparent		 	None None	Long Brief	Frequer
	 	:		>6.0	Apparent				1	:
		Jul	2.5	>6.0   >6.0	Apparent			None		None
	1	Aug	3.0	>6.0	Apparent			None	Priof	None  Occasion
		Sep   Oct	2.5	>6.0   >6.0	Apparent			None None	Brief   Brief	Occasion
		Nov	1.5	>6.0   >6.0	Apparent			None	:	Rare
		Dec	1.0   1.0	>6.0   >6.0	Apparent  Apparent			None	Very brief 	None
25.										
ZE: Deerton, dissected	   A	  Jan-Dec	>6.0	>6.0		 		   None		   None
	!			[				1		
Tokiahok, dissected	A	Jan-Dec	>6.0	>6.0				None		None

Table 21.--Water Features--Continued

			Wa	ter tabl			Ponding		Floo	ding
Map symbol	: -	Months	Upper	Lower	1	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water	water				
	group			<u> </u>	table	depth			<u> </u>	<u> </u>
			Ft	Ft		Ft				
72E:	 			 		 	 	 	l I	1
Trout Bay, dissected	   D	  Jan-Jun	0.0	1.6	Perched	 	 	None	 	None
iiodc bay, dissected	5	Jul	0.5	1.6	Perched			None		None
	i	Aug	1.0	1.6	Perched			None		None
	i	Sep	0.5	1.6	Perched			None		None
	İ	Oct-Dec	0.0	1.6	Perched			None		None
	İ	į į		ĺ	į			ĺ	ĺ	İ
72F:										
Deerton, dissected	A	Jan-Dec	>6.0	>6.0				None		None
	!							!	!	
Tokiahok, dissected	A	Jan-Dec	>6.0	>6.0				None		None
	! _									
Trout bay, dissected	D	Jan-Jun	0.0	1.6	Perched			None		None
		Jul	0.5 1.0	1.6   1.6	Perched	 	 	None None	 	None None
	 	Aug Sep	0.5	1.6	Perched	 	 	None	 	None
	i	Oct-Dec	0.0	1.6	Perched	 	 	None		None
	i					! 	 		İ	
76C:	i	i i		İ	İ			İ	İ	İ
Garlic, dissected	A	Jan-Dec	>6.0	>6.0		i		None	i	None
	ĺ	į į		ĺ	İ		ĺ	ĺ	ĺ	İ
Blue Lake, dissected	A	Jan-Dec	>6.0	>6.0				None		None
Voelker, dissected	В	Jan-Dec	>6.0	>6.0				None		None
76E:		   Tam Dam				 	 	 		N
Garlic, dissected	A	Jan-Dec	>6.0	>6.0 		 	<b></b>	None	 	None
Blue Lake, dissected	   A	  Jan-Dec	>6.0	   >6.0		l I	l 	None	 	None
Dide Lane, dibbected				20.0		 	! 	110110	l I	
Voelker, dissected	В	Jan-Dec	>6.0	>6.0				None		None
	i	į i		İ	İ	İ	İ	İ	İ	İ
76F:	ĺ	į į		ĺ	İ		ĺ	ĺ	ĺ	İ
Garlic, dissected	A	Jan-Dec	>6.0	>6.0				None		None
Blue Lake, dissected	A	Jan-Dec	>6.0	>6.0				None		None
	_									
Voelker, dissected	B	Jan-Dec	>6.0	>6.0				None		None
77B:		 		 	1	 	 	I I	l I	
Garlic	   A	  Jan-Dec	>6.0	   >6.0		 	 	None	 	None
Guille				20.0		 	! 	None	l I	
Blue Lake	A	Jan-Dec	>6.0	>6.0				None		None
	i	į i		İ	İ	İ	İ	İ	İ	İ
Voelker	В	Jan-Dec	>6.0	>6.0				None	i	None
77D:								[		
Garlic	A	Jan-Dec	>6.0	>6.0				None		None
Blue Lake	A	Jan-Dec	>6.0	>6.0				None		None
Voelker	   B	  Jan-Dec	\ <b>.</b> 6 0	   >6.0		 	 	None	 	None
+03TVGT			/ / / / /	/0.0		 	- <del></del>	HOME	3 	Mone
77E:	i							İ	İ	
Garlic	A	Jan-Dec	>6.0	>6.0				None		None
	į	į i		j	į			İ	İ	İ
Blue Lake	A	Jan-Dec	>6.0	>6.0		i		None	i	None
		l i								
Voelker	В	Jan-Dec	>6.0	>6.0				None		None

Table 21.--Water Features--Continued

	I			ter table		<u> </u>	Ponding			ding
Map symbol		Months	Upper	Lower	:	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic  group		limit	limit 	water   table	water   depth		 		
			Ft	Ft	 	Ft				
3:					 	 				
Cathro	A/D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent	0.5	Brief	Frequent		None
		Apr-May	0.0	>6.0	Apparent	0.5	Long	Frequent		None
		Jun	0.0	>6.0	Apparent	0.5	Brief	Frequent		None
		Jul	0.5	>6.0	Apparent			None		None
	ĺ	Aug	1.0	>6.0	Apparent	i i		None		None
	ĺ	Sep	0.5	>6.0	Apparent	i i		None		None
	ĺ	Oct-Nov	0.0	>6.0	Apparent	0.5	Brief	Frequent		None
		Dec	0.0	>6.0	Apparent			None		None
Ensley	   B/D	  Jan-Feb	0.0	   >6.0	  Apparent	 		None		None
	i '	Mar	0.0	>6.0	Apparent	:	Brief	Occasional		None
	İ	Apr-May	0.0	>6.0	Apparent	:	Long	Frequent		None
	İ	Jun	0.5	>6.0	Apparent		Brief	Occasional		None
	İ	Jul	1.0	>6.0	Apparent	:		None		None
	İ	Aug	2.0	>6.0	Apparent			None		None
	 	Sep	1.5	>6.0	Apparent	:		None		None
	 	Oct	0.5	>6.0	Apparent	:	Brief	Frequent		None
	 	Nov	0.0	>6.0	Apparent	:	Brief	Frequent		None
	İ	Dec	0.0	>6.0	Apparent			None		None
•										1
3: Tawas	   A/D	  Jan-Feb	0.0	   >6.0	  Apparent	 	 	None		None
	į	Mar	0.0	>6.0	Apparent		Brief	Frequent		None
	İ	Apr-May	0.0	>6.0	Apparent		Long	Frequent		None
	İ	Jun	0.0	>6.0	Apparent		Brief	Frequent		None
	İ	Jul	0.5	>6.0	Apparent	:		None		None
	İ	Aug	1.0	>6.0	Apparent	:		None		None
	İ	Sep	0.5	>6.0	Apparent	:		None		None
	İ	Oct-Nov	0.0	>6.0	Apparent	:	Brief	Frequent		None
	İ	Dec	0.0	>6.0	Apparent	:		None		None
Deford	   A/D	  Jan-Feb	0.0	   >6.0	  Apparent	 		None		None
201014	11,2	Mar	0.0	>6.0	Apparent	0.5	Brief	Occasional		None
	 	Apr-May	0.0	>6.0	Apparent	:	Long	Frequent		None
	 	Jun	0.5	>6.0	Apparent	: :		None		None
	 	Jul	1.5	>6.0	Apparent	:		None		None
	 	Aug	2.0	>6.0	Apparent			None		None
	 	Sep	1.0	>6.0	Apparent	!!!!		None		None
	 	Oct-Nov	0.0	>6.0	Apparent	0.5	Brief	Frequent		None
		Dec	0.0	>6.0	Apparent			None		None
ED.										
5B: Liminga	   A	  Jan-Dec	>6.0	   >6.0	 	 		None		None
	İ	į į		į	İ	į į		į į		į
04C: Fence, dissected	   B	   Jan	5.5	   >6.0	  Apparent	 	 	None		None
		Feb	5.0	>6.0	Apparent	: :	 	None		None
	 	Mar	3.0	>6.0	Apparent	: :		None		None
	I I	Apr	1.5	>6.0	Apparent	: :		None		None
	I I	May	2.0	>6.0	Apparent	: :	 	None		None
	i I	may     Jun	4.5	>6.0   >6.0	Apparent	 	 	None		None
	I I	Jun	6.0	>6.0   >6.0	Apparent		 	None		None
	I I	: :	>6.0	>6.0   >6.0	Apparent 	 	 	None		None
	I I	Aug	6.0	>6.0   >6.0	!	!!!!	 	None		None
	I I	Sep   Oct	5.0	>6.0   >6.0	Apparent	 	 	None		None
	I I	: :			Apparent	!!!!	 	None		None
	I I	Nov	4.5	>6.0	Apparent	: :		!		1
	I	Dec	5.0	>6.0	Apparent			None		None

Table 21.--Water Features--Continued

				ter tabl			Ponding		Floo	
Map symbol		Months	Upper	Lower	1		Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				
	group				table	depth	<u> </u>	L	<u> </u>	
			Ft	Ft		Ft				
09D:										
Rousseau	A	Jan-Dec	>6.0	>6.0				None		None
B		 			1.3			 		
Dawson	D D	Jan-Mar	0.0	>6.0	Apparent			Frequent		None   None
	l I	Apr-May	0.0	>6.0	Apparent		-	Frequent		None
	l I	Jun  Jul-Aug	0.0	>6.0   >6.0	Apparent   Apparent		Brief	Frequent   None	 	None
	l I	: - :	0.0	>6.0	Apparent		 	None	 	None
	l I	Sep   Oct	0.0	>6.0	Apparent		1	Frequent	 	None
	 	Nov	0.0	>6.0	Apparent			Frequent	 	None
	 	Dec	0.0	>6.0	Apparent			Frequent	 	None
	 	l Dec	0.0	20.0	Apparent	0.0-0.5   	DITEL	rrequenc	 	None
09F:	 	 		 	İ		! 			
Rousseau	   A	Jan-Dec	>6.0	>6.0				None		None
					<u> </u>		İ			
Dawson	   D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
i	İ	Apr-May	0.0	>6.0	Apparent			Frequent		None
i	İ	Jun	0.0	>6.0	Apparent			Frequent		None
İ	İ	Jul-Aug	0.5	>6.0	Apparent			None		None
İ	İ	Sep	0.0	>6.0	Apparent			None		None
	j	Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
	İ	Nov	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent		None
	ĺ	Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
	ĺ	į į		ĺ	İ			ĺ		İ
25B:	ĺ	į į		ĺ	İ			ĺ		İ
Stutts	A	Jan-Dec	>6.0	>6.0				None		None
Kalkaska	A	Jan-Dec	>6.0	>6.0				None		None
25D:										
Stutts	A	Jan-Dec	>6.0	>6.0				None		None
Kalkaska	A	Jan-Dec	>6.0	>6.0				None		None
.25E:										
Stutts	A	Jan-Dec	>6.0	>6.0				None		None
Kalkaska	A	Jan-Dec	>6.0	>6.0				None		None
					!					
35B:										
Munising, calcareous	_									
substratum	B	Jan-Feb		>6.0				None		None
		Mar	1.5	2.0	Perched			None		None
		Apr	1.0	2.0	Perched			None		None
		May	1.5	2.0	Perched			None		None
		Jun-Sep		>6.0				None		None
		Oct-Nov	1.5	2.0	Perched			None		None
	 	Dec	>6.0	>6.0				None		None
Engloss	   p/p	   Ton 13-1-1	0.0		]		 	No		37
Ensley	B/D	Jan-Feb	0.0	>6.0	Apparent			None		None
	l I	Mar	0.0	>6.0	Apparent		Brief	Occasional		None
	l I	Apr-May	0.0	>6.0	Apparent		Long	Frequent		None
	 	Jun	0.5	>6.0	Apparent		Brief	Occasional		None
	l I	Jul	1.0	>6.0	Apparent		 	None		None
	 	Aug	2.0	>6.0	Apparent			None		None
	 	Sep	1.5	>6.0	Apparent			None		None
	 	Oct	0.5	>6.0	Apparent		Brief	Frequent		None
		Nov Dec	0.0	>6.0   >6.0	Apparent   Apparent	0.5 	Brief	Frequent   None		None None

Table 21.--Water Features--Continued

			Wa	ter tabl	e		Ponding		Floo	ding
Map symbol and soil name	Hydro-  logic  group	Months	Upper limit	Lower   limit	Kind of   water   table	Surface   water   depth	Duration	Frequency 	Duration 	Frequency 
			Ft	Ft		Ft		Ī	İ	1
	į	j i		į	į	į		İ	İ	į
L45C:										
Munising, dissected,					!			!	!	
very stony	В	Jan-Feb		>6.0				None		None
		Mar	1.5	2.0	Perched			None		None
		Apr	1.0	2.0	Perched			None		None
		May	1.5	2.0	Perched			None		None
	 	Jun-Sep	>6.0 2.0	>6.0   2.5	Perched	 		None   None		None None
	l I	Nov	1.5	2.0	Perched			None		None
		Dec	>6.0	>6.0				None		None
Yalmer, dissected,										
very stony	   B	  Jan-Feb	>6.0	   >6.0		 		None		None
.ory boom,	, , ,	Mar	1.5	2.0	Perched			None		None
	İ	Apr	1.0	2.0	Perched			None		None
	İ	May	1.5	2.0	Perched			None		None
	İ	Jun-Oct		>6.0				None		None
	İ	Nov	1.5	2.0	Perched			None	i	None
	į	Dec	>6.0	>6.0		i		None		None
L46B:	 			 		 		 	 	
Munising, stony	В	Jan-Feb	>6.0	>6.0	j			None		None
	ĺ	Mar	1.5	2.0	Perched			None		None
		Apr	1.0	2.0	Perched			None		None
		May	1.5	2.0	Perched			None		None
		Jun-Sep	>6.0	>6.0				None		None
		Oct	2.0	2.5	Perched			None		None
		Nov	1.5	2.0	Perched			None		None
	 	Dec	>6.0	>6.0 		 		None		None
Skanee, stony	C	Jan-Feb	5.5	>6.0	Apparent			None		None
	İ	Mar	5.0	>6.0	Apparent			None		None
	İ	Apr	4.5	>6.0	Apparent			None		None
	į	Apr	0.5	1.2	Perched	i		į	į	İ
	į	May	0.5	1.2	Perched			None		None
		May	4.5	>6.0	Apparent					
		Jun	1.0	1.2	Perched			None		None
		Jun	4.5	>6.0	Apparent					
		Jul	5.5	>6.0	Apparent			None		None
		Aug-Sep		>6.0				None		None
	 	Oct-Dec	5.5	>6.0 	Apparent	 		None		None
147A:	į	į i				į		į	į	
Skanee, very stony	C	Jan-Feb	5.5	>6.0	Apparent			None		None
		Mar	5.0	>6.0	Apparent			None		None
		Apr	4.5	>6.0	Apparent			None		None
		Apr	0.5	1.2	Perched			37		37
	 	May	0.5	1.2	Perched			None		None
	I I	May	4.5	>6.0	Apparent			None		Mone
	I I	Jun	1.0 4.5	1.2   >6.0	Perched			None		None
	I I	Jun   Jul	5.5	>6.0   >6.0	Apparent   Apparent			None		None
	I I	Jui  Aug-Sep		>6.0   >6.0	Apparent			None		None
	I I	Oct-Dec	5.5	>6.0	Apparent			None		None
	İ								i	

Table 21.--Water Features--Continued

			Wat	er tabl	е		Ponding		Floo	ding
Map symbol	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water	water				
	group		Ft	   Ft	table	depth   Ft		1		1
	 		FC	FC 		FC				1
.47A:	İ	i i			İ	i i		İ		į
Gay, very stony	D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent	0.5	Brief	Occasional		None
		Apr-May	0.0	>6.0	Apparent	0.5	Long	Frequent		None
		Jun	0.5	>6.0	Apparent			None		None
		Jul	1.5	>6.0	Apparent	: :		None		None
		Aug	2.0	>6.0	Apparent	: :		None		None
		Sep	1.0	>6.0	Apparent			None		None
		Oct-Nov	0.0	>6.0	Apparent	: :	Brief	Frequent		None
	 	Dec	0.0	>6.0	Apparent	 		None		None
.48B:	 					 		i		
Shoepac	В	Jan-Feb	5.5	>6.0	Apparent	i i		None		None
		Mar	3.0	>6.0	Apparent			None		None
		Apr	1.5	>6.0	Apparent			None		None
		May	2.0	>6.0	Apparent			None		None
		Jun	4.5	>6.0	Apparent			None		None
		Jul	6.0	>6.0	Apparent			None		None
		Aug	>6.0	>6.0				None		None
		Sep	6.0	>6.0	Apparent	: :		None		None
		Oct	5.0	>6.0	Apparent			None		None
		Nov	4.5	>6.0	Apparent			None		None
	 	Dec	5.0	>6.0	Apparent			None		None
Ensley	   B/D	  Jan-Feb	0.0	   >6.0	Apparent	 		None		None
-	i	Mar	0.0	>6.0	Apparent	0.5	Brief	Occasional		None
	j	Apr-May	0.0	>6.0	Apparent	0.5	Long	Frequent		None
	į	Jun	0.5	>6.0	Apparent	0.5	Brief	Occasional		None
	ĺ	Jul	1.0	>6.0	Apparent	i i		None		None
	ĺ	Aug	2.0	>6.0	Apparent	i i		None		None
		Sep	1.5	>6.0	Apparent			None		None
		Oct	0.5	>6.0	Apparent	0.5	Brief	Frequent		None
		Nov	0.0	>6.0	Apparent	0.5	Brief	Frequent		None
		Dec	0.0	>6.0	Apparent			None		None
155A:	 			 		 		 		1
Zeba, very stony	c c	Jan-Feb	2.0	2.8	Perched			None		None
	İ	Mar	1.5	2.8	Perched	i i		None		None
	į	Apr	1.0	2.8	Perched	j j		None		None
	ĺ	May	0.5	2.8	Perched	i i		None		None
	ĺ	Jun	2.0	2.8	Perched	i i		None		None
		Jul	2.5	2.8	Perched			None		None
		Aug	>6.0	>6.0				None		None
		Sep	2.5	2.8	Perched			None		None
		Oct-Nov	1.0	2.8	Perched			None		None
		Dec	1.5	2.8	Perched			None		None
Jacobsville, very	 			 		 		 		1
stony	   D	Jan-Feb	0.0	3.0	Perched	 		None		None
* <b>4</b>	İ	Mar	0.0	3.0	Perched	0.5	Brief	Occasional		None
	İ	Apr-May	0.0	3.0	Perched	0.5	Long	Frequent		None
	İ	Jun	0.5	3.0	Perched			None		None
	İ	Jul	1.0	3.0	Perched	i i		None		None
	İ	Aug	2.0	3.0	Perched	i i		None		None
	i	Sep	1.5	3.0	Perched	i i		None		None
	ı									
	 	Oct-Nov	0.0	3.0	Perched	0.5	Brief	Frequent		None

Table 21.--Water Features--Continued

			Wat	ter tabl	e		Ponding		Floc	ding
Map symbol	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				
	group				table	depth				
			Ft	Ft		Ft				
57B:					!					
Reade	В	Jan-Feb	>6.0	>6.0				None		None
		Mar	2.0	2.3	Perched			None		None
		Apr	1.0	2.3	Perched			None		None
		May	2.0	2.3	Perched			None		None
		Jun	>6.0	>6.0				None		None
	 	Jul	1.0	2.3	Perched			None		None
	 	Aug-Sep		>6.0				None		None
	 	Oct	1.0	2.3	Perched			None		None
	 	Nov	2.0	2.3	Perched			None		None
	 	Dec	>6.0	>6.0				None		None
Nahma	   D	  Jan-Feb	0.0	2.5	Perched	 		None		None
Namma	1	Mar	0.0	2.5	Perched	0.5	Brief	Occasional		None
	! 	Apr-May	0.0	2.5	Perched	0.5	Long	Frequent		None
	l I	Jun	0.5	2.5	Perched	0.5   		None		None
	! 	Jul	1.0	2.5	Perched	 		None		None
	i I	Aug	2.0	2.5	Perched			None		None
	! 	Sep	1.5	2.5	Perched			None		None
	! 	Oct-Nov	0.0	2.5	Perched	0.5	Brief	Frequent		None
	İ	Dec	0.0	2.5	Perched			None		None
	İ	i i			İ	i i		i i		i
.58C:	j	i i		İ	İ	i i		į į		i
Munising, dissected,	İ	į į		İ	İ	i i		į į		Ì
stony	В	Jan-Feb	>6.0	>6.0				None		None
_	İ	Mar	1.5	2.0	Perched	i i		None		None
	İ	Apr	1.0	2.0	Perched	i i		None		None
	į	May	1.5	2.0	Perched			None		None
	į	Jun-Sep	>6.0	>6.0				None		None
	ĺ	Oct	2.0	2.5	Perched			None		None
	ĺ	Nov	1.5	2.0	Perched			None		None
		Dec	>6.0	>6.0				None		None
Abbaye, dissected,										
stony	В	Jan-Feb	>6.0	>6.0				None		None
		Mar	2.0	2.7	Perched			None		None
		Apr	1.0	2.7	Perched			None		None
		May	2.0	2.7	Perched			None		None
		Jun-Sep	>6.0	>6.0				None		None
		Oct	1.0	2.7	Perched			None		None
		Nov	2.0	2.7	Perched			None		None
		Dec	>6.0	>6.0				None		None
COD	 			 						
60B:	   74	Tan Bab	5.0	   >6.0	Annamar +	 		None		Nor-
Paquin	A 	Jan-Feb    Mar	2.5	>6.0   >6.0	Apparent   Apparent	 		None   None		None None
	l I	1	2.0		Apparent	 		None		None
	l I	Apr-May	3.5	>6.0   >6.0	Apparent	 		None		None
	l I	Jun     Jul	4.5	>6.0   >6.0	Apparent	 		None		None
	l I	Aug	5.5	>6.0   >6.0	Apparent	 		None		None
	l I	Aug     Sep	4.5	>6.0   >6.0	Apparent	 		None		None
	 	Oct-Nov	3.0	>6.0   >6.0	Apparent	 		None		None
	l I	Dec	4.0	>6.0   >6.0	Apparent	 		None		None
	1	, 200	4.0							110116

Table 21.--Water Features--Continued

	l	[		ter tabl		<u> </u>	Ponding		Floo	
Map symbol		Months	Upper	Lower	1	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				
	group			=-	table	depth		1	<u> </u>	1
	l I	 	Ft	Ft		Ft		1	l I	
.60B:	 	 		 	 	 			 	
Finch	l c	  Jan-Feb	1.5	>6.0	Apparent			None		None
		Mar	1.0	>6.0	Apparent			None		None
	! 	Apr-May	0.5	>6.0	Apparent			None		None
	İ	Jun	1.0	>6.0	Apparent			None		None
	i İ	Jul	2.0	>6.0	Apparent			None		None
	j	Aug	3.0	>6.0	Apparent	i i		None		None
	ĺ	Sep	2.0	>6.0	Apparent			None		None
		Oct-Nov	1.0	>6.0	Apparent			None		None
		Dec	1.5	>6.0	Apparent			None		None
.61B:										
Yellowdog, stony	A	Jan-Dec	>6.0	>6.0				None		None
Buckroe, stony	A	Jan-Dec	>6.0	>6.0				None		None
I CED.	 	 		 	1				 	
165B: Chocolay, very stony	   A.	  Jan-Feb	>6.0	   >6.0		 	 	None	 	None
chocolay, very stony	A.	Mar	2.0	2.3	Perched	 		None	 	None
	l I	Mar     Apr	1.0	2.3	Perched			None	 	None
	l I	May	2.0	2.3	Perched			None	 	None
	 	Jun-Sep		>6.0				None		None
	! 	Oct	1.0	2.3	Perched			None		None
	! 	Nov	2.0	2.3	Perched			None		None
	! 	Dec	>6.0	>6.0				None		None
	İ	i i			İ	i i		į	İ	i
Waiska, very stony	A	Jan-Dec	>6.0	>6.0		i i		None		None
	ĺ	į į			į	į į		İ	ĺ	İ
166:										
Skandia	D	Jan-Feb	0.0	2.2	Perched			None		None
		Mar	0.0	2.2	Perched	0.0-0.5	Brief	Frequent		None
		Apr-May	0.0	2.2	Perched	0.0-0.5	Long	Frequent		None
		Jun	0.0	2.2	Perched	0.0-0.5	Brief	Frequent		None
		Jul	0.5	2.2	Perched			None		None
		Aug	1.0	2.2	Perched			None		None
		Sep	0.5	2.2	Perched			None		None
		Oct-Nov	0.0	2.2	1	0.0-0.5	Brief	Frequent		None
		Dec	0.0	2.2	Perched			None		None
167:	 	 		 		 		1	l I	
Skandia, stony	   D	  Jan-Feb	0.0	2.2	Perched	 		None	 	None
Brandia, Scony	1	Mar	0.0	2.2	Perched		Brief	Frequent		None
	 	Mar  Apr-May	0.0	2.2	Perched		Long	Frequent	 	None
	 	Jun	0.0	2.2	Perched			Frequent		None
	 	Jul	0.5	2.2	Perched			None	 	None
	 	Aug	1.0	2.2	Perched			None	 	None
	! 	Sep	0.5	2.2	Perched			None		None
	İ	Oct-Nov	0.0	2.2	Perched		Brief	Frequent		None
	İ	Dec	0.0	2.2	Perched			None		None
		į į			İ	j		İ	İ	İ
Jacobsville, stony	D	Jan-Feb	0.0	3.0	Perched	j j		None		None
		Mar	0.0	3.0	Perched	0.5	Brief	Occasional		None
		Apr-May	0.0	3.0	Perched	0.5	Long	Frequent		None
		Jun	0.5	3.0	Perched			None		None
		Jul	1.0	3.0	Perched			None		None
		Aug	2.0	3.0	Perched			None		None
		Sep	1.5	3.0	Perched			None		None
	l	Oct-Nov	0.0	3.0	Perched	0.5	Brief	Frequent		None
		Dec	0.0	3.0	Perched	i i		None		None

Table 21.--Water Features--Continued

			Wat	ter tabl			Ponding			ding
Map symbol and soil name	logic	Months	Upper limit	Lower	water	Surface    water	Duration	Frequency	Duration	Frequency
	group			=-	table	depth		1	<u> </u>	1
			Ft	Ft		Ft		l I	l I	
.70B:	l I	 		 	1	 			l I	1
Chocolay, very stony	l A	  Jan-Feb	>6.0	   >6.0		 		None		None
chocolay, very scony	<del>^</del>	Mar	2.0	2.3	Perched			None		None
		Apr	1.0	2.3	Perched			None		None
		May	2.0	2.3	Perched			None		None
	! 	Jun-Sep		>6.0				None		None
	i	Oct	1.0	2.3	Perched	i i		None		None
	i	Nov	2.0	2.3	Perched	i i		None		None
	i	Dec	>6.0	>6.0				None		None
	İ	i i		İ	i	i i		i	İ	İ
71B:	İ	i i		İ	İ	j i		į	İ	İ
Paavola, very stony	В	Jan-Feb	>6.0	>6.0	j	j j		None		None
	İ	Mar	1.5	2.6	Perched	j j		None		None
	İ	Apr	1.0	2.6	Perched	j j		None		None
	İ	May	1.5	2.6	Perched	j j		None		None
		Jun-Sep	>6.0	>6.0		i i		None		None
		Oct	2.0	2.6	Perched			None		None
		Nov	1.5	2.6	Perched			None		None
		Dec	>6.0	>6.0				None		None
72D: Buckroe, very bouldery	   A	  Jan-Dec	>6.0	   >6.0		 		   None	 	   None
Rock outcrop.				 		 		 		
72F:										
Buckroe, very bouldery	A	Jan-Dec	>6.0	>6.0				None		None
Rock outcrop.										
T.C.										
.76B:			- 0							
Croswell	A	Jan-Feb	5.0	>6.0	Apparent	: :		None		None
		Mar	2.5	>6.0	Apparent	 		None None	 	None None
		Apr-May    Jun	2.0 3.5	>6.0   >6.0	Apparent	 		None		None
	l I	Jul	4.5	>6.0   >6.0	Apparent   Apparent	 		None		None
	l I	: :	5.5	>6.0	Apparent			None		None
	l I	Aug     Sep	4.5	>6.0	Apparent			None		None
	l I	Oct-Nov	3.0	>6.0	Apparent			None		None
		Dec	4.0	>6.0	Apparent			None		None
		200	1.0	20.0	Implantant			110110		110110
Kinross	A/D	Jan-Feb	0.0	>6.0	Apparent			None		None
	, -	Mar	0.0	>6.0	Apparent		Brief	Occasional		None
	i	Apr	0.0	>6.0	Apparent		Long	Frequent		None
	i	May	0.5	>6.0	Apparent		Long	Frequent		None
	i	Jun	0.5	>6.0	Apparent			None		None
	i	Jul	1.5	>6.0	Apparent			None		None
	İ	Aug	2.0	>6.0	Apparent			None		None
		Sep	1.5	>6.0	Apparent	: :		None		None
		Oct-Nov	0.0	>6.0	Apparent	: :	Brief	Frequent		None
		Dec	0.0	>6.0	Apparent	i i		None		None
81E:		 		 		 		 		
Frohling, dissected,					1					
stony	В	Jan-Dec	>6.0	>6.0				None		None
					ļ			ļ.		!
Tokiahok, dissected,										
stony	A	Jan-Dec		>6.0				None		None

Table 21.--Water Features--Continued

Mar   Symbol   Mydro   Months   Oppor   Lover   Marine   Starface   Direction   Frequency   Duration   Prequency   Continue   Cont				Wa	ter tabl	e		Ponding		Floo	ding
	Map symbol	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequency
	and soil name	logic		limit	limit	water	water				
185h:		group				table	depth				<u> </u>
Monaster   B   Jan   Pab   S.   S.   S.   S.   Apparent				Ft	Ft		Ft				
Monaster   B   Jan   Pab   S.   S.   S.   S.   Apparent		ļ									
Mar		-									
	McMaster	B	:		:	:		!	:		1
Jun   3.5   56.0   Apparent     None     None   None   None   Aug   5.5   56.0   Apparent     None     None   None   Sep   4.5   56.0   Apparent     None     None   None   None   Sep   4.5   56.0   Apparent     None     Jul   4.5   56.0   Apparent			: :		:	:	:	!	:	!	1
Aug   5.5   >6.0   Apparent     None     None   None   Sep   4.5   >6.0   Apparent     None     None						:		!	1	!	:
Sep   4.5   >6.0   Apparent     None     None   None   None   Cot Nov   3.0   >6.0   Apparent     None					!	:		!	1	!	1
					!	:		!	1	!	1
Dec   4.0   >6.0   Apparent     None     None					!	:		!	1	!	1
1868:   Chatham, stony			:		!	:		!	1	!	1
Chatham, stony		l I	ј рес	4.0	>0.0	Apparent		 	None		None
Chatham, stony	196D.	l I	 		l I	i i	 	 	I I	l I	I I
186D:		l I B	  .Tan_Dec	 	   >6 0		 	l 	None	 	None
Chatham, stony	Chacham, Scony	5	oan-bec	20.0	20.0			 	None	 	None
Chatham, stony	1860.	l I			 			 	1	 	I I
187B:		l B	  Jan-Dec	   >6.0	>6.0	i		 	None	 	None
Reade	ondonam, boom	-				i		! 		i I	
Reade	187B:	İ			 	i		! 	İ	i I	i
Mar   2.0   2.3   Perched     None   None   None   Apr   1.0   2.3   Perched     None   None   None   None   May   2.0   2.3   Perched     None     None   None   None   Jul   1.0   2.3   Perched     None     None   None   Jul   1.0   2.3   Perched     None      May   2.0   2.3   Perched     None     None   Jun   56.0   56.0     None   None   None   None   Jun   1.0   2.3   Perched     None		İ	:		1	Perched			1		1
May   2.0   2.3   Perched     None     None   Jun   56.0   56.0     None   None   None   None   Jun   1.0   2.3   Perched     None		İ			1	1			1		None
Jun   >6.0   >6.0       None     None   None   Jun   1.0   2.3   Perched     None   No		İ			1	1			1		1
Aug-Sep   S6.0		İ	: - :		!	1			1		1
Oct   1.0   2.3   Perched     None   N		İ			1	Perched			1		1
Oct   1.0   2.3   Perched       None     None   Non		İ	Aug-Sep	>6.0	>6.0	i			None	i	None
Dec   >6.0   >6.0       None     None   None         188B:		İ			2.3	Perched		i	None	i	None
188B:		İ	Nov	2.0	2.3	Perched			None		None
Eben, stony		İ	Dec	>6.0	>6.0				None		None
Eben, stony		ĺ	į į		ĺ	İ			Ì		İ
188D:	188B:										
Eben, stony	Eben, stony	A	Jan-Dec	>6.0	>6.0				None		None
Eben, stony											
188E:											
Eben, stony	Eben, stony	A	Jan-Dec	>6.0	>6.0				None		None
Eben, stony		ļ									
191B:   Ruse		ļ									
Ruse	Eben, stony	A	Jan-Dec	>6.0	>6.0				None		None
Ruse	1015										
Mar   0.0   1.2   Perched   0.5   Brief   Occasional     None   Apr-May   0.0   1.2   Perched   0.5   Long   Frequent     None   Jun   0.5   1.2   Perched       None     None   None   Jul   1.0   1.2   Perched       None     None   None   Aug-Sep   >6.0   >6.0       None     None     None   Oct-Nov   0.0   1.2   Perched   0.5   Brief   Frequent     None   None   Dec   0.0   1.2   Perched       None     None   None   Ensign   D   Jan-Mar   >6.0   >6.0       None     None   None   May   0.5   1.2   Perched       None     None   Jun-Sep   >6.0   >6.0       None     None   None   Jun-Sep   >6.0   >6.0       None       1.2   Perched   0.5   Long   Frequent     None   Jun   0.5   1.2   Perched       None     None   None   Jul   1.0   1.2   Perched       None     None   None   None   Aug-Sep   >6.0   >6.0       None     None     None   None   Oct-Nov   0.0   1.2   Perched   0.5   Brief   Frequent     None   None   Dec   0.0   1.2   Perched       None     None   None   None   Apr   1.0   1.2   Perched       None     None   None   May   0.5   1.2   Perched       None     None   Jun-Sep   >6.0   >6.0       None     None   None   None   Jun-Sep   >6.0   >6.0       None     None   None   None   None   Jun-Sep   >6.0   >6.0       None        Perched     None     None   Jul   1.0   1.2   Perched     None   None   None   None   None   Aug-Sep   >6.0   >6.0       None   None   None   None   Oct-Nov   0.0   1.2   Perched   0.5   Brief   Frequent     None   None   Dec   0.0   1.2   Perched     None   None   None   None   None   None   None   None   None   Apr   1.0   1.2   Perched     None   None   None   None   May   0.5   1.2   Perched     None   None   None   None   Jun-Sep   >6.0   >6.0       None		l I			!	1			:	!	1
Jul   1.0   1.2   Perched     None     None   None   None   Aug-Sep   >6.0   >6.0       None   N		I I	: :		!	1			-	!	1
Aug-Sep   >6.0   >6.0       None   None   None   None   None   None     None		I I			1	1		!	1	!	1
Oct-Nov   0.0   1.2   Perched   0.5   Brief   Frequent     None   Dec   0.0   1.2   Perched     None     None   Jun-Sep   >6.0   >6.0       None     None   No		I I	:					!			:
Dec   0.0   1.2   Perched     None     None   No		I I				1	!	!	'		1
Ensign D   Jan-Mar   >6.0   >6.0       None   None     None   None   None   None     None   None   None   None   None   None   None   None     None		1				1			: -	!	1
Apr   1.0   1.2   Perched     None     None   May   0.5   1.2   Perched     None   None   None   Jun-Sep   >6.0   >6.0       None   No		i i	230	0.0				 	110116	 	
Apr   1.0   1.2   Perched     None     None   May   0.5   1.2   Perched     None   None   None   Jun-Sep   >6.0   >6.0       None   No	Ensign	D	Jan-Mar	>6.0	>6.0				None		None
May   0.5   1.2   Perched     None     None   Jun-Sep   >6.0   >6.0       None   None   None	<b>3</b>	-				1	!	!	1	!	1
Jun-Sep   >6.0   >6.0       None     None		i	: - :			:		!	1	!	1
		i						!	1	!	1
		İ				1		!	:		1
Dec   >6.0       None     None		i	:			1		!	:	!	1
		İ	i i		İ	İ	į	İ	İ	İ	i

Table 21.--Water Features--Continued

	l			ter tabl		<u> </u>	Ponding			ding
Map symbol	_	Months	Upper	Lower	:	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				
	group			<u> </u>	table	depth		<u> </u>		
			Ft	Ft		Ft				
97B:				 				l I		
Shoepac	l I B	  Jan-Feb	5.5	   >6.0	  Apparent	 		None	 	None
Snoepac	<b>-</b>	Mar	3.0	>6.0   >6.0	Apparent			None		None
	l I		1.5	>6.0   >6.0	Apparent			None		None
	l I	Apr	2.0	>6.0   >6.0	Apparent			None		None
	l I	May	4.5		:			None	 	None
		Jun	6.0	>6.0	Apparent			None	 	None
		Jul		>6.0	Apparent	 		None	 	None
		Aug	>6.0 6.0	>6.0	1	 		None	 	None
		Sep		>6.0	Apparent	!		1	 	1
		Oct	5.0	>6.0	Apparent			None		None
		Nov	4.5	>6.0	Apparent			None		None
		Dec	5.0	>6.0	Apparent			None		None
renary	   B	  Jan-Dec	>6.0	   >6.0		 		None	 	None
remary	5	Uan-Dec	70.0	20.0				None		None
98B:	l I			 		 				
Shoepac	   B	  Jan-Feb	5.5	   >6.0	Apparent	 		None	 	None
Silvepac	5	Mar	3.0	>6.0   >6.0	Apparent	!		None	 	None
	l I		1.5	>6.0   >6.0	Apparent			None	 	None
	 	Apr	2.0	>6.0   >6.0	:	!		None	 	None
		May	4.5		Apparent			None	 	None
		Jun		>6.0	Apparent			1	 	1
		Jul	6.0	>6.0	Apparent			None		None
		Aug	>6.0	>6.0				None		None
		Sep	6.0	>6.0	Apparent			None		None
		Oct	5.0	>6.0	Apparent			None		None
		Nov	4.5	>6.0	Apparent			None		None
		Dec	5.0	>6.0	Apparent			None		None
	_									
Reade	В	Jan-Feb	>6.0	>6.0				None		None
		Mar	2.0	2.3	Perched			None		None
		Apr	1.0	2.3	Perched			None		None
		May	2.0	2.3	Perched			None		None
		Jun	>6.0	>6.0				None		None
		Jul	1.0	2.3	Perched			None		None
		Aug-Sep		>6.0				None		None
		Oct	1.0	2.3	Perched			None		None
		Nov	2.0	2.3	Perched			None		None
		Dec	>6.0	>6.0				None		None
00A:										
Charlevoix	C	Jan-Mar	1.5	>6.0	Apparent			None		None
		Apr	1.0	>6.0	Apparent			None		None
		May	0.5	>6.0	Apparent			None		None
		Jun	2.0	>6.0	Apparent			None		None
		Jul	2.5	>6.0	Apparent			None		None
		Aug	3.0	>6.0	Apparent			None		None
		Sep	2.5	>6.0	Apparent			None		None
		Oct	1.5	>6.0	Apparent			None		None
		Nov-Dec	1.0	>6.0	Apparent			None		None
		l i								
Insley	B/D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent	0.5	Brief	Occasional		None
		Apr-May	0.0	>6.0	Apparent	0.5	Long	Frequent		None
		Jun	0.5	>6.0	Apparent	0.5	Brief	Occasional		None
		Jul	1.0	>6.0	Apparent			None		None
	İ	Aug	2.0	>6.0	Apparent			None		None
	i	Sep	1.5	>6.0	Apparent			None		None
	İ	Oct	0.5	>6.0	Apparent		Brief	Frequent		None
	İ	Nov	0.0	>6.0	Apparent		Brief	Frequent		None
	 	Dec	0.0	>6.0	Apparent			None		None
			0.0	/ / 0 . 0	TIPPOTETIL		- <b></b>	TAOTTE		

Table 21.--Water Features--Continued

				ter tabl			Ponding		Floo	
Map symbol		Months	Upper	Lower	:		Duration	Frequency	Duration	Frequenc
and soil name	logic  group		limit	limit 	water   table	water   depth		 	 	 
			Ft	Ft	İ	Ft		İ	İ	1
	ĺ	į į		ĺ	İ			ĺ	ĺ	İ
02B:										
Sauxhead, very stony	D	Jan-Mar		>6.0	Domahad			None		None
	 	Apr-May  Jun-Sep	1.0 >6.0	1.4   >6.0	Perched	 		None   None		None
	l I	Oct-Nov		1.4	Perched			None	i	None
	 	Dec	>6.0	>6.0				None		None
	İ				İ			İ	İ	
06B:	ĺ	į į		ĺ				ĺ	ĺ	İ
Traunik	A	Jan-Dec	>6.0	>6.0				None		None
06D: Traunik	l I A	  Jan-Dec	\ <b>&gt;</b> 6 0	   >6.0		 		None	 	None
Iraumik	A 	Jan-Dec	>0.0	>0.0		 		None		None
11B:	 							İ	İ	
Munising	В	Jan-Feb	>6.0	>6.0				None		None
-	İ	Mar	1.5	2.0	Perched			None	i	None
	į	Apr	1.0	2.0	Perched			None	i	None
		May	1.5	2.0	Perched			None		None
		Jun-Sep	>6.0	>6.0				None		None
		Oct	2.0	2.5	Perched			None		None
		Nov	1.5	2.0	Perched			None		None
	ļ	Dec	>6.0	>6.0				None		None
11.1										
Abbaye	B	Jan-Feb		>6.0				None		None
		Mar	2.0	2.7	Perched			None		None
	 	Apr	1.0	2.7	Perched			None		None
		May	2.0	2.7	Perched			None		None
	 	Jun-Sep		>6.0				None None		None
	 	Oct	1.0	2.7 2.7	Perched Perched	 		None		None
	l I	Nov Dec	>6.0	2.7		 		None		None
	İ								i	
14B:	İ	į i		į	İ			İ	İ	İ
Kalkaska	A	Jan-Dec	>6.0	>6.0				None		None
				[				!	!	
Blue Lake	A	Jan-Dec	>6.0	>6.0				None		None
14D:	 			 		 		 	 	
Kalkaska	   A	Jan-Dec	>6.0	>6.0		 		None	i	None
	i				İ				İ	
Blue Lake	A	Jan-Dec	>6.0	>6.0				None	j	None
14E:										
Kalkaska	A	Jan-Dec	>6.0	>6.0				None		None
Dive John						 		Name .		N
Blue Lake	A	Jan-Dec	>0.0	>6.0				None		None
21B:	 				İ	 		 	 	İ
Jeske	D	Jan	1.0	1.7	Perched			None		None
	İ	Feb-Mar		1.7	Perched			None	i	None
	į	Apr	0.0	1.7	Perched			None		None
	İ	May	0.5	1.7	Perched			None		None
	i	Jun	1.5	1.7	Perched			None		None
					:			None		None
	 	Jul-Aug	>6.0	>6.0						
	   	Jul-Aug	>6.0 1.5	>6.0   1.7	Perched			None		1
	     	Jul-Aug   Sep   Oct	1.5		Perched				!	None
	       	Sep		1.7				None		None   None   None

Table 21.--Water Features--Continued

			Wa	ter tabl	e		Ponding		Floo	ding
Map symbol and soil name	logic	Months	Upper limit	Lower	Kind of   water   table	Surface   water   depth	Duration	Frequency	Duration	Frequency
	group		Ft	   Ft	Labie	Geptii				<u> </u>
			10	10		10		i		
221B:	İ	į i		İ	İ	İ		j i		İ
Au Train	D	Jan	>6.0	>6.0				None		None
		Feb-Mar	1.5	2.7	Perched			None		None
		Apr	1.0	2.7	Perched			None		None
		May	1.5	2.7	Perched			None		None
		Jun-Aug	>6.0	>6.0				None		None
		Sep-Oct	1.5	2.7	Perched			None		None
		Nov	1.0	2.7	Perched			None		None
		Dec	1.5	2.7	Perched			None		None
Gongeau	   D	  Jan-Feb	0.0	1.5	Perched	 		None		None
oongoud	-	Mar	0.0	1.5	Perched	0.5	Brief	Occasional		None
	i	Apr-May	0.0	1.5	Perched	0.5	Long	Frequent		None
	i	Jun	0.5	1.5	Perched			None		None
	İ	Jul	1.0	1.5	Perched			None		None
	İ	Aug-Sep	>6.0	>6.0				None		None
	į	Oct-Nov	0.0	1.5	Perched	0.5	Brief	Frequent		None
	į	Dec	0.0	1.5	Perched			None		None
225B:										
Cusino	A	Jan-Dec	>6.0	>6.0				None		None
225D:								[ [		
Cusino	A	Jan-Dec	>6.0	>6.0				None		None
					!					!
226B:					!					!
Kalkaska	A	Jan-Dec	>6.0	>6.0				None		None
					ļ					
Cusino	A	Jan-Dec	>6.0	>6.0				None		None
2260										
226D: Kalkaska	l I A	  Jan-Dec	>6.0	   >6.0		 	 	None		None
Naikaska	A	Jan-Dec	>0.0	>0.0				None		None
Cusino	l A	Jan-Dec	>6.0	   >6.0		 		None		None
Cusino	<del>1</del>	Uan-Dec	/ /0.0	/0.0			 	None		None
226E:	 			 		 				İ
Kalkaska	l A	Jan-Dec	>6.0	>6.0				None		None
	, 				i			1.0110		
Cusino	A	Jan-Dec	>6.0	>6.0	i			None		None
	i				i	i				İ
226F:	İ	į i		İ	İ	İ		į i		İ
Kalkaska	A	Jan-Dec	>6.0	>6.0	j			None		None
	ĺ	į į		İ	ĺ			į į		Ì
Cusino	A	Jan-Dec	>6.0	>6.0	j			None		None
		l i						I i		
227A:										
Halfaday	В	Jan-Feb	5.0	>6.0	Apparent			None		None
	ļ	Mar	2.5	>6.0	Apparent			None		None
	ļ	Apr-May	2.0	>6.0	Apparent			None		None
		Jun	3.5	>6.0	Apparent			None		None
		Jul	4.5	>6.0	Apparent			None		None
		Aug	5.5	>6.0	Apparent			None		None
		Sep	4.5	>6.0	Apparent			None		None
		Oct-Nov		>6.0	Apparent			None		None
		Dec	4.0	>6.0	Apparent			None		None
2228.	 			 		 				1
232B:	   7	Tan Do-	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		I	 		None		None
Shelldrake	A	Jan-Dec	>6.0	>6.0				None		None

Table 21.--Water Features--Continued

	!		'	ter tabl		<u> </u>	Ponding		Floo	
Map symbol	: -	Months	Upper	Lower	1	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				
	group		<u> </u>	<u> </u>	table	depth				<u> </u>
	!		Ft	Ft	!	Ft				
33B:										
Abbaye, very stony	В	Jan-Feb	>6.0	>6.0				None		None
		Mar	2.0	2.7	Perched			None		None
		Apr	1.0	2.7	Perched			None		None
		May	2.0	2.7	Perched			None		None
	İ	Jun-Sep	>6.0	>6.0				None		None
	i	Oct	1.0	2.7	Perched	i i		None		None
	i	Nov	2.0	2.7	Perched			None		None
	i	Dec	>6.0	>6.0				None		None
	i	1 200			İ	<u> </u>		110220		
Zeba, very stony	C	Jan-Feb	2.0	2.8	Perched	 		None	 	None
Zeba, very scony	-	Mar	1.5	2.8	Perched			None	 	None
				1	1	!		!		!
		Apr	1.0	2.8	Perched			None		None
		May	0.5	2.8	Perched			None		None
	!	Jun	2.0	2.8	Perched			None		None
		Jul	2.5	2.8	Perched			None		None
		Aug	>6.0	>6.0				None		None
		Sep	2.5	2.8	Perched			None		None
		Oct-Nov	1.0	2.8	Perched			None		None
		Dec	1.5	2.8	Perched			None		None
	İ	į i	ĺ	İ	Ì	į į		İ		İ
34A:	i	į i	İ	İ	İ	j i		İ		i
Levasseur, very stony	D	Jan	>6.0	>6.0	i	i i		None		None
	i -	Feb-Mar		1.1	Perched			None		None
	i	Apr	0.0	1.1	Perched	 		None		None
	1	May	0.5	1.1	Perched			None		None
				1.1	1	!		!		!
		Jun	1.5		Perched			None		None
		Jul-Aug		>6.0				None		None
	!	Sep	1.5	1.1	Perched			None		None
		Oct	1.0	1.1	Perched			None		None
		Nov	0.5	1.1	Perched			None		None
		Dec	1.0	1.1	Perched			None		None
Burt, very stony	D	Jan-Feb	0.0	1.6	Perched			None		None
		Mar	0.0	1.6	Perched	0.5	Brief	Occasional		None
	İ	Apr-May	0.0	1.6	Perched	0.5	Long	Frequent		None
	İ	Jun	0.5	1.6	Perched	i i		None		None
	i	Jul	1.0	1.6	Perched	i i		None		None
	i	Aug	>6.0	>6.0				None		None
	i	Sep	1.5	1.6	Perched			None		None
		Oct-Nov		1.6	Perched	0.5	Brief	Frequent		None
		:		1.6	Perched	0.5	Prier	-		!
		Dec	0.0	1 1.0	Perched			None		None
255	1				1			1		1
35B:	! _				1					
Sauxhead, very stony	D	Jan-Mar		>6.0				None		None
		Apr-May	1.0	1.4	Perched			None		None
		Jun-Sep	>6.0	>6.0				None		None
		Oct-Nov	1.0	1.4	Perched			None		None
		Dec	>6.0	>6.0				None		None
					1	ı i				
Burt, very stony	D	Jan-Feb	0.0	1.6	Perched			None		None
, , , , , , , , , , , , , , , , , , , ,	i '	Mar	0.0	1.6	Perched	0.5	Brief	Occasional		None
	i	Apr-May		1.6	Perched	0.5	Long	Frequent		None
		Jun	0.5	1.6	:	0.5		None	 	None
	1			,	Perched	! !				
	1	Jul	1.0	1.6	Perched			None		None
	1	Aug	>6.0	>6.0				None		None
	!	Sep	1.5	1.6	Perched			None		None
	1	Oct-Nov		1.6	Perched	0.5	Brief	Frequent		None
	1	Dec	0.0	1.6	Perched			None		None

Table 21.--Water Features--Continued

	l		Wa	ter tabl	e	<u> </u>	Ponding		Floo	ding
Map symbol		Months	Upper	Lower	1	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				
	group			1	table	depth				
			Ft	Ft		Ft				
236B:	 					 	l I			
	l I			 	I I	l I	 	 		 
Waiska, extremely							 			
bouldery	A	Jan-Dec	>6.0	>6.0			 	None		None
236D:	! 						 			
Waiska, extremely	İ	i i		İ	İ	İ	İ	i i		İ
bouldery	A	Jan-Dec	>6.0	>6.0				None		None
		İ		ĺ	ĺ		ĺ	ĺ		
237B:										
Chatham	В	Jan-Dec	>6.0	>6.0				None		None
Davies	   D	  Jan-Feb	0.0	   >6.0	  Apparent	 	 	   None		   None
24,160	ر <sub>ا</sub>	Mar	0.0	>6.0	Apparent	:	Brief	Occasional		None
	l I	: :		:	:	:		:		!
	l I	Apr-May	0.0	>6.0   >6.0	Apparent	!	Long	Frequent		None
	 	Jun		!	Apparent		!	None		None
		Jul	1.5	>6.0	Apparent			None		None
		Aug	2.0	>6.0	Apparent			None		None
		Sep	1.0	>6.0	Apparent			None		None
		Oct-Nov		>6.0	Apparent		Brief	Frequent		None
	 	Dec	0.0	>6.0 	Apparent	 	<b></b>	None		None
239B:	 					 	 			 
Longrie	В	Jan-Dec	>6.0	>6.0	j			None		None
-	İ	į į		j	į	İ	İ	j i		İ
Shingleton	A	Jan-Dec	>6.0	>6.0				None		None
240F:	 			 		 	 	 		 
Trout Bay	   D	  Jan-Jun	0.0	1.6	Perched	 	 	None		None
Trout Bay	<b>D</b>	Jul	0.5	1.6	Perched			None		None
	l I	: :	1.0	1.6	Perched		 	None		None
	l I	Aug	0.5	1.6	Perched		 	:		!
	l I	Sep		!	!	!	!	None		None
	 	Oct-Dec	0.0	1.6	Perched	 	 	None		None
Gongeau	י   ס	Jan-May	0.0	1.5	Perched			None		None
-	İ	Jun	0.5	1.5	Perched			None		None
	İ	Jul	1.0	1.5	Perched			None		None
	İ	Aug-Sep	>6.0	>6.0	i			None		None
	İ	Oct-Dec	0.0	1.5	Perched	i		None		None
Shingleton	A.	Jan-Dec	>6.0	>6.0 		 	 	None		None
Rock outcrop.					İ	İ				İ
241.							 			
241: Cathro	   A/D	  Jan-Feb	0.0	   >6.0	  Apparent	 	 	None		   None
	11,5	Mar	0.0	>6.0	Apparent		Brief	Frequent		None
	l I			>6.0				- :		
	l I	Apr-May			Apparent		Long	Frequent		None
	l I	Jun	0.0	>6.0	Apparent		Brief	Frequent		None
	l I	Jul	0.5	>6.0	Apparent			None		None
		Aug	1.0	>6.0	Apparent			None		None
		Sep	0.5	>6.0	Apparent			None		None
	ļ	Oct-Nov		>6.0	Apparent		Brief	Frequent		None
	l	Dec	0.0	>6.0	Apparent			None		None

Table 21.--Water Features--Continued

			Wat	ter tabl	e		Ponding		Floo	ding
Map symbol	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				
	group				table	depth				
			Ft	Ft		Ft				
41:										
Gay	D	Jan-Feb	0.0	>6.0	Apparent			None		None
	ĺ	Mar	0.0	>6.0	Apparent	0.5	Brief	Occasional		None
	İ	Apr-May	0.0	>6.0	Apparent	0.5	Long	Frequent		None
	İ	Jun	0.5	>6.0	Apparent			None		None
	İ	Jul	1.5	>6.0	Apparent			None		None
	! 	Aug	2.0	>6.0	Apparent			None		None
	 	Sep	1.0	>6.0	Apparent			None		None
	 	Oct-Nov	0.0	>6.0	Apparent	0.5	Brief	Frequent		None
	l I	Dec	0.0	>6.0	:	0.5		None	 	None
	l I	l Dec l	0.0	20.0	Apparent			None		None
42B:	l I	 		 						1
Kalkaska, severely	l I	 		 	1					I I
burned	   74		>6.0	   >6.0				None	 	None
burned	A	Jan-Dec	>0.0	>0.0				None		None
42D :	 			 	I I					
42D:	 			 						
Kalkaska, severely										
burned	A	Jan-Dec	>6.0	>6.0				None		None
42F:								!		
Kalkaska, severely										
burned	A	Jan-Dec	>6.0	>6.0				None		None
43:										
Markey	D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent		None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
	ĺ	Jul	0.5	>6.0	Apparent			None		None
	İ	Aug	1.0	>6.0	Apparent			None		None
	İ	Sep	0.5	>6.0	Apparent			None		None
	İ	Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
	i I	Dec	0.0	>6.0	Apparent			None		None
	İ	i i			1					
45B:	! 	i i		! 	i			i		
Trout Bay	D D	Jan-Feb	0.0	1.6	Perched			None		None
11040 247	-	Mar	0.0	1.6	Perched	0.5	Brief	Frequent		None
	 	Apr-May	0.0	1.6	Perched	0.5	Long	Frequent		None
	 	Jun	0.0	1.6	Perched	0.5	Brief	Frequent		None
	l I	Jul	0.5	1.6	Perched	0.5		None		None
	 	: :		!	1					
	 	Aug	1.0	1.6	Perched			None		None
		Sep	0.5	1.6	Perched			None		None
		Oct-Nov	0.0	1.6	Perched	0.5	Brief	Frequent		None
		Dec	0.0	1.6	Perched			None		None
	_									
Lupton	D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent			Frequent		None
		Apr-May		>6.0	Apparent			Frequent		None
		Jun	0.0	>6.0	Apparent			Frequent		None
		Jul	0.5	>6.0	Apparent			None		None
		Aug	1.0	>6.0	Apparent			None		None
		Sep	0.5	>6.0	Apparent			None		None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
		Dec	0.0	>6.0	Apparent			None		None

Table 21.--Water Features--Continued

	1			ter tabl		<u> </u>	Ponding			ding
Map symbol	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				!
	group				table	depth				1
	l I		Ft	Ft	1	Ft		 		l I
45B:	 			 		 				
Gongeau	D D	Jan-Feb	0.0	1.5	Perched			None		None
	-	Mar	0.0	1.5	Perched	0.5	Brief	Occasional		None
	İ	Apr-May	0.0	1.5	Perched	0.5	Long	Frequent		None
	İ	Jun	0.5	1.5	Perched			None		None
	İ	Jul	1.0	1.5	Perched			None		None
	İ	Aug-Sep	>6.0	>6.0	i	i i		None		None
	į	Oct-Nov	0.0	1.5	Perched	0.5	Brief	Frequent		None
	ĺ	Dec	0.0	1.5	Perched	i i		None		None
4.65										
46B:										
Garlic	A	Jan-Dec	>6.0	>6.0				None		None
46D:	 			 	 	 				1
Garlic	   A	Jan-Dec	>6.0	   >6.0		 		None		None
			, , , ,							
46E:	į	į į		İ	İ	į į		j i		į
Garlic	A	Jan-Dec	>6.0	>6.0				None		None
248B:										
Escanaba	A	Jan-Dec	>6.0	>6.0				None		None
	_									
Greylock	B	Jan-Dec	>6.0	>6.0				None		None
248D:	 			 						
Escanaba	   A	Jan-Dec	>6.0	   >6.0		 		None		None
Escanaba	A 	Uan-Dec	70.0	20.0				None		None
Greylock	   B	Jan-Dec	>6.0	   >6.0		 		None		None
010710011	-									
248E:	İ	i			i	i i		i i		i
Escanaba	A	Jan-Dec	>6.0	>6.0		j j		None		None
	ĺ	į į			İ	į į		į į		İ
Greylock	В	Jan-Dec	>6.0	>6.0				None		None
249B:					!					!
Sauxhead	D	Jan-Mar		>6.0				None		None
		Apr-May	1.0	1.4	Perched			None		None
	 	Jun-Sep		>6.0	!	 		None		None
	 	Oct-Nov	1.0 >6.0	1.4   >6.0	Perched	 		None None		None None
	 	l Dec	70.0	20.0				None		None
Skandia	   D	Jan-Feb	0.0	2.2	Perched	 		None		None
	i -	Mar	0.0	2.2	Perched	0.0-0.5	Brief	Frequent		None
	İ	Apr-May	0.0	2.2	Perched		Long	Frequent		None
	İ	Jun	0.0	2.2	Perched		Brief	Frequent		None
	į	Jul	0.5	2.2	Perched	i i		None		None
	ĺ	Aug	1.0	2.2	Perched	i i		None		None
	ĺ	Sep	0.5	2.2	Perched	i i		None		None
		Oct-Nov	0.0	2.2	Perched	0.0-0.5	Brief	Frequent		None
		Dec	0.0	2.2	Perched			None		None
	ļ							!		ļ
50B:						[				1
Chocolay, extremely										
stony	A	Jan-Feb		>6.0				None		None
		Mar	2.0	2.3	Perched			None		None
	 	Apr	1.0	2.3	Perched			None		None
	l I	May	2.0	2.3	Perched	 		None		None
	I I	Jun-Sep Oct	>6.0 1.0	>6.0 2.3	Perched	 		None None		None None
	I I	Nov	2.0	2.3	Perched	 		None		None
	I I	Dec	>6.0	2.3   >6.0		 		None		None
	1	l Dec	/0.0	/ / 0 . 0				140116		MOHE

Table 21.--Water Features--Continued

			Wa	ter tabl	е		Ponding		Floo	ding
Map symbol	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water	water				
	group	<u> </u>			table	depth		<u> </u>	<u> </u>	1
			Ft	Ft		Ft	 	l I		
250B:	1	 	 	 	l I	l I	 	l I	l I	1
Jacobsville, extremely	  -			 		l l	 			
stony		Jan-Feb	0.0	3.0	Perched		 	None		None
boomy	-	Mar	0.0	3.0	Perched	0.5	Brief	Occasional		None
	i	Apr-May		3.0	Perched	0.5	Long	Frequent		None
	i	Jun	0.5	3.0	Perched			None		None
	i	Jul	1.0	3.0	Perched		 	None		None
	i	Aug	2.0	3.0	Perched		 	None		None
	i	Sep	1.5	3.0	Perched		 	None		None
	i	Oct-Nov	0.0	3.0	Perched	0.5	Brief	Frequent		None
	i	Dec	0.0	3.0	Perched			None		None
	i					İ	! 			i
251B:	İ	İ		İ	i	İ		İ	İ	İ
Greylock	В	Jan-Dec	>6.0	>6.0	j			None		None
-	į	İ	İ	İ	İ	İ	İ	İ	İ	İ
251D:	İ	İ	İ	İ	İ	İ	İ	į	İ	İ
Greylock	В	Jan-Dec	>6.0	>6.0	j			None		None
	İ	İ		ĺ	ĺ	İ				Ì
252A:										
Finch	C	Jan-Feb	1.5	>6.0	Apparent			None		None
		Mar	1.0	>6.0	Apparent			None		None
		Apr-May	0.5	>6.0	Apparent			None		None
		Jun	1.0	>6.0	Apparent			None		None
		Jul	2.0	>6.0	Apparent			None		None
		Aug	3.0	>6.0	Apparent			None		None
		Sep	2.0	>6.0	Apparent			None		None
		Oct-Nov	1.0	>6.0	Apparent			None		None
		Dec	1.5	>6.0	Apparent			None		None
Kinross	A/D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional		None
		Apr	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent		None
		May	0.5	>6.0	Apparent	0.0-0.5	Long	Frequent		None
		Jun	0.5	>6.0	Apparent			None		None
		Jul	1.5	>6.0	Apparent	1		None		None
		Aug	2.0	>6.0	Apparent	1		None		None
		Sep	1.5	>6.0	Apparent	,		None		None
		Oct-Nov	0.0	>6.0	Apparent	1	Brief	Frequent		None
	ļ	Dec	0.0	>6.0	Apparent			None		None
					ļ					
254C:										
Kalkaska, dissected	A	Jan-Dec	>6.0	>6.0				None		None
Blue Lake, dissected	A	Jan-Dec	>6.0	>6.0				None		None
254E.	1		l I	 		I I	 	I I		1
254E:		 								
Kalkaska, dissected	A	Jan-Dec	>6.0	>6.0				None		None
Dina Tala di manta	3	   Tam Dam			1		l I	Name -	l I	l Mana
Blue Lake, dissected	A	Jan-Dec	>0.0	>6.0				None		None
254F:	I I	 	 	 	1	1	 	I I	 	I I
Z54F: Kalkaska, dissected	   A	  Jan-Dec	 	   >6.0			l 	None	 	None
nainasna, dissected	4	Jan-Dec	/0.0	20.0			 I	None	_ <del></del>	MOHE
Blue Lake, dissected	   A	Jan-Dec	   >6 ∩	   >6.0			l 	None	 	None
Dide Hake, dissected	4	Jan-Dec	/0.0	20.0			 I	None	_ <del></del>	MOHE
255D:		 	 	 		 	1 			İ
Wallace	l B	Jan-Dec	   >6 0	   >6.0			l 	None	 	None
	2	Jan-Dec	/0.0	/0.0			ı	140116	 I	1 140116
256B:			 	 		 	1 			
Whitewash	   A	Jan-Dec	   >6.0	   >6.0			 	None	 	None
	<u> </u>			- 5.0	1	i -	. – I		- 	1.0116
	1	T.	ı	I .	T.	I .	I	I	I	1

Table 21.--Water Features--Continued

	l		wat	er tabl	e	l	Ponding		Floc	ding
	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water	water				
	group				table	depth				
l			Ft	Ft		Ft				
				İ				!!!		
66A:	   A/D	  Jan-Feb	0.0	   >6.0	Apparent	 		None		None
Spot	A/D	Mar	0.0		Apparent		Brief	Occasional		None
!	 	: :		>6.0	:	:		!		1
!	 	Apr-May	0.0	>6.0	Apparent	:	Long	Frequent		None
ļ ,		Jun	0.5	>6.0	Apparent	:		None		None
ļ ,		Jul	1.5	>6.0	Apparent	:		None		None
l		Aug	2.0	>6.0	Apparent	:		None		None
l l		Sep	1.0	>6.0	Apparent	:		None		None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent		None
		Dec	0.0	>6.0	Apparent			None		None
  Finch	   C	  Jan-Feb	1.5	   >6.0	Apparent	 		None		None
rinen	-	Mar	1.0	>6.0	Apparent			None		None
	l I	1 1		>6.0	:		 	:		None
	 	Apr-May	0.5		Apparent	!		None		
!		Jun	1.0	>6.0	Apparent			None		None
ļ ,		Jul	2.0	>6.0	Apparent			None		None
l l		Aug	3.0	>6.0	Apparent			None		None
		Sep	2.0	>6.0	Apparent			None		None
		Oct-Nov	1.0	>6.0	Apparent			None		None
		Dec	1.5	>6.0	Apparent			None		None
67A:	 	 		 	 	 				1
Finch	l C	  Jan-Feb	1.5	   >6.0	Apparent	 		None		None
i	i	Mar	1.0	>6.0	Apparent	i i		None		None
Ī	İ	Apr-May	0.5	>6.0	Apparent	i i		None		None
	! 	Jun	1.0	>6.0	Apparent			None		None
	l I	Jul	2.0	>6.0	Apparent	 		None		None
	l I	Aug	3.0	>6.0	Apparent			None		None
	l I	: - :	2.0	>6.0	Apparent		 	None		None
	 	Sep				!		:		
	 	Oct-Nov	1.0 1.5	>6.0   >6.0	Apparent   Apparent	 		None   None		None None
	 	Dec	1.5	20.0	Apparenc					None
68C:	İ	i i		j	İ	i i		į į		İ
Munising, calcareous										
substratum, dissected	В	Jan-Feb	>6.0	>6.0				None		None
		Mar	1.5	2.0	Perched			None		None
Ī		Apr	1.0	2.0	Perched	j i		None		None
i		May	1.5	2.0	Perched	i i		None		None
i	İ	Jun-Sep	>6.0	>6.0		i i		None		None
ļ	İ	Oct-Nov	1.5	2.0	Perched	i i		None		None
	İ	Dec	>6.0	>6.0		i i		None		None
_ ,,, _										
Frohling, calcareous substratum, dissected	   в	  Jan-Dec	>6 O	   >6.0		   <b></b> -		None		None
substratum, dissected	<b>•</b> 	Jan-Dec	>0.0	>0.0		 		None		None
Cookson, dissected	В	Jan-Dec	>6.0	>6.0		ļ ļ		None		None
69E:	l I	 		 				 		1
Frohling, calcareous	i I			! 	1			;		İ
substratum, dissected	I   в	  Jan-Dec	>6.0	   >6.0		 		None		None
substratum, dissected	5	am-nec	<b>70.0</b>	/0.0		 		NOITE		None
  Garlic, dissected	   A	  Jan-Dec	>6.0	   >6.0		 		None		None
	į					i i				
· ·										

Table 21.--Water Features--Continued

				ter tabl			Ponding		Floo	
Map symbol and soil name	Hydro-  logic  group	Months	Upper limit	Lower   limit	Kind of   water   table	Surface    water     depth	Duration	Frequency 	Duration   	Frequenc
			Ft	   Ft		Gepth     Ft			<u> </u>	1
	! 				İ			İ	İ	
72C:	j	į į		j	j	j j		į	j	į
Munising, calcareous										
substratum, dissected	В	Jan-Feb	>6.0	>6.0				None		None
		Mar	1.5	2.0	Perched			None		None
	ĺ	Apr	1.0	2.0	Perched	i i		None		None
	İ	May	1.5	2.0	Perched	i i		None		None
	İ	Jun-Sep	>6.0	>6.0	j	i i		None	i	None
	İ	Oct-Nov	1.5	2.0	Perched	i i		None	i	None
	İ	Dec	>6.0	>6.0	i	i i		None	i	None
	İ	į i		İ	i	i i		i	İ	i
Yalmer, calcareous	İ			İ	i	i i		i	İ	i
substratum, dissected	l B	Jan-Feb	>6.0	>6.0				None		None
Dabboratam, arbbotoa	<del>-</del>	Mar	1.5	2.5	Perched	'		None		None
	 	Apr	1.0	2.5	Perched	 		None	 	None
	 	May	1.5	2.5	Perched	   <b></b>		None	l	None
	l I	Jun-Sep		>6.0		 		None	 	None
	l I		2.0	2.5	Perched	 		None	 	None
	l I	Oct		1		 			1	
	 	Nov	1.5	2.5	Perched	! !		None		None
		Dec	>6.0	>6.0				None		None
Frohling, calcareous						! !				ļ
substratum, dissected	В	Jan-Dec	>6.0	>6.0				None		None
75B:										
Munising, calcareous										
substratum	В	Jan-Feb	>6.0	>6.0				None		None
		Mar	1.5	2.0	Perched			None		None
		Apr	1.0	2.0	Perched			None		None
		May	1.5	2.0	Perched			None		None
	ĺ	Jun-Sep	>6.0	>6.0		i i		None		None
	İ	Oct-Nov	1.5	2.0	Perched	i i		None		None
	İ	Dec	>6.0	>6.0		i i		None		None
	İ	į i		İ	i	i i		i	İ	İ
Cookson	В	Jan-Dec	>6.0	>6.0	i	i i		None	i	None
	İ				i	i i		İ	İ	i
81E:	! 			! 	i			i	İ	i
Mongo, dissected	l c	Jan-Dec	>6.0	>6.0		 		None	 	None
mongo, dibbeced	•	Journ Dec	20.0	20.0	i	 		110110	I I	110110
82B:	l I			 		 		 	l I	
	   A	Jan-Dec	>6.0	   >6.0		 		None	l 	None
Furlong	A	Jan-Dec	>0.0	>0.0				None		None
al de al estad										
Shingleton	A	Jan-Dec	>6.0	>6.0				None		None
182D:						! !				ļ
Furlong	A	Jan-Dec	>6.0	>6.0				None		None
Shingleton	A	Jan-Dec	>6.0	>6.0				None		None
84B:										
Steuben	A	Jan-Dec	>6.0	>6.0				None		None
Blue Lake	A	Jan-Dec	>6.0	>6.0				None		None
		į į				ĺ				
Kalkaska	A	Jan-Dec	>6.0	>6.0		i i		None	i	None
						ı i				
84D:	İ	į į		İ	i	į į		İ	İ	İ
Steuben	A.	Jan-Dec	>6.0	>6.0				None		None
	i				i				i i	
	l A	Jan-Dec	>6.0	   >6.0		 		None	 	None
Blue Lake					1 -			110116		1 110116
Blue Lake	 	į į		i	i	j i		I	1	1
Blue Lake	     A	Jan-Dec	>6 O	   >6.0	j I			   None	 	None

Table 21.--Water Features--Continued

				ter tabl		<u> </u>	Ponding			ding
Map symbol	-	Months	Upper	Lower	1	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic  group		limit	limit	water   table	water   depth	 	l I	 	l I
	group 		Ft	Ft	Labie	Gepth   Ft	<u> </u>	1	l	<u> </u>
	 			10		10	! 	i		
284E:	İ					i				İ
Steuben	A	Jan-Dec	>6.0	>6.0		j		None		None
Blue Lake	A	Jan-Dec	>6.0	>6.0				None		None
Kalkaska							 	Name of		Name -
Kaikaska	A 	Jan-Dec	>6.0	>6.0			<b></b>	None		None
285B:	İ					i				İ
Halfaday	В	Jan-Feb	5.0	>6.0	Apparent			None		None
		Mar	2.5	>6.0	Apparent			None		None
		Apr-May	2.0	>6.0	Apparent			None		None
		Jun	3.5	>6.0	Apparent			None		None
		Jul	4.5	>6.0	Apparent			None		None
		Aug	5.5	>6.0	Apparent			None		None
		Sep	4.5	>6.0	Apparent	:		None		None
		Oct-Nov	3.0	>6.0	Apparent	:		None		None
		Dec	4.0	>6.0	Apparent			None		None
***										
Kinross	A/D	Jan-Feb	0.0	>6.0	Apparent	:	   D	None		None
	 	Mar	0.0	>6.0	Apparent	:	Brief	Occasional		None
	 	Apr	0.0	>6.0   >6.0	Apparent	:	Long	Frequent	 	None None
	l I	May	0.5	>6.0	Apparent	:	Long	Frequent   None		None
	l I	Jun   Jul	1.5	>6.0	Apparent   Apparent	:	 	None		None
	 	Aug	2.0	>6.0	Apparent	:	 	None	 	None
	l I	Sep	1.5	>6.0	Apparent	:	 	None	 	None
	 	Oct-Nov	0.0	>6.0	Apparent	:	Brief	Frequent		None
	i i	Dec	0.0	>6.0	Apparent	1		None		None
	İ	į i		İ		i	İ	į	İ	İ
286B:	ĺ	į į		İ	İ	ĺ	ĺ	İ		İ
Greylock	В	Jan-Dec	>6.0	>6.0				None		None
						!		!		!
Cookson	B	Jan-Dec	>6.0	>6.0				None		None
287B:	l I			 	1	 	 		l I	1
McMaster	।   в	Jan-Feb	5.0	>6.0	Apparent		 	None		None
MCMascer	5	Mar	2.5	>6.0	Apparent			None		None
	 	Apr-May	2.0	>6.0	Apparent		 	None		None
	 	Jun	3.5	>6.0	Apparent	:	 	None		None
		Jul	4.5	>6.0	Apparent			None		None
	İ	Aug	5.5	>6.0	Apparent			None		None
	i	Sep	4.5	>6.0	Apparent	:		None		None
	i	Oct-Nov		>6.0	Apparent	:		None		None
	İ	Dec	4.0	>6.0	Apparent	1		None		None
		l i						I		
Davies	D	Jan-Feb	0.0	>6.0	Apparent			None		None
		Mar	0.0	>6.0	Apparent	0.5	Brief	Occasional		None
		Apr-May	0.0	>6.0	Apparent	0.5	Long	Frequent		None
		Jun	0.5	>6.0	Apparent			None		None
		Jul	1.5	>6.0	Apparent			None		None
		Aug	2.0	>6.0	Apparent			None		None
		Sep	1.0	>6.0	Apparent			None		None
		Oct-Nov		>6.0	Apparent		Brief	Frequent		None
		Dec	0.0	>6.0	Apparent			None		None
2007.							 		 	1
90A: Namur, very stony	   D	  Jan-Dec	>6.0	   >6.0			 	None		None
Tamar, very Scony		Jan-Dec	/0.0					1 110116		140116

Table 21.--Water Features--Continued

Manage 12 2	   *** *	1 1		ter tabl		l a c	Ponding		Floo	
Map symbol	: -	Months	Upper	Lower	1	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic  group		limit	limit 	water   table	water   depth				
			Ft	Ft		Ft		!!!		
90A:	 			 	 	 				 
Ruse, very stony	   D	  Jan-Feb	0.0	1.5	Perched	 		None		None
1 1 1 1	i	Mar	0.0	1.5	Perched	0.5	Brief	Occasional		None
	İ	Apr-May	0.0	1.5	Perched	0.5	Long	Frequent		None
	İ	Jun	0.5	1.5	Perched			None		None
		Jul	1.0	1.5	Perched			None		None
		Aug-Sep	>6.0	>6.0				None		None
		Oct-Nov	0.0	1.5	Perched	0.5	Brief	Frequent		None
		Dec	0.0	1.5	Perched			None		None
92B:	 			 	 	 				 
Mashek, sandy	! !			 		 				 
substratum	В	Jan-Feb	>6.0	>6.0				None		None
	i	Mar	1.5	3.1	Perched			None		None
	İ	Apr	1.0	3.1	Perched	i i		None		None
	į	May	1.5	3.1	Perched	i i		None		None
	İ	Jun-Sep	>6.0	>6.0				None		None
		Oct	2.0	3.1	Perched			None		None
		Nov	1.5	3.1	Perched			None		None
		Dec	>6.0	>6.0				None		None
0.CD :										
96D: Islandlake	   A	  Jan-Dec	>6.0	   >6.0	 	 		None		   None
ISIANGIARE	A 	Jan-Dec	>0.0	>0.0		 		None		None
McMillan	B	Jan-Dec	>6.0	>6.0				None		None
96E:		 		 	 	 				 
Islandlake	   A	  Jan-Dec	>6.0	>6.0		 		None		None
	į	i i		į	į	j i		į į		į
McMillan	В	Jan-Dec	>6.0	>6.0				None		None
97B:	i				 	 				 
Rubicon, severely	i	i i		İ	i	i i		i i		i
burned	A	Jan-Dec	>6.0	>6.0		i i		None		None
	į	į į		j	į	j i		į į		į
97D:										
Rubicon, severely										
burned	A	Jan-Dec	>6.0	>6.0				None		None
98B:										
Wurtsmith	   B	  Jan-Feb	5.0	>6.0	  Apparent	 		None		   None
	-	Mar	2.5	>6.0	Apparent			None		None
	i	Apr-May	2.0	>6.0	Apparent			None		None
	i	Jun	3.5	>6.0	Apparent			None		None
	i	Jul	4.5	>6.0	Apparent	i i		None		None
	i	Aug	5.5	>6.0	Apparent	i i		None		None
	i	Sep	4.5	>6.0	Apparent	i i		None		None
	İ	Oct-Nov	3.0	>6.0	Apparent			None		None
	ĺ	Dec	4.0	>6.0	Apparent			None		None
Defend			0 0					Name		
Deford	A/D	Jan-Feb	0.0	>6.0	Apparent	   0 E	 Dwief	None		None
	I	Mar	0.0	>6.0	Apparent	: :	Brief	Occasional		None
	I	Apr-May	0.0	>6.0	Apparent	0.5	Long	Frequent		None
	1	Jun	0.5	>6.0	Apparent			None		None
	I	Jul	1.5	>6.0	Apparent			None		None
	1	Aug	2.0	>6.0	Apparent	: :		None		None
	1	Sep	1.0	>6.0   >6.0	Apparent	   0.5	Brief	None   Frequent		None
	1	Oct-Nov	0.0	>6.0   >6.0	Apparent	0.5 	Briei	Frequent     None		None
	I	Dec	0.0		Apparent			MOHE		None

Table 21.--Water Features--Continued

	1 1	Wa	ter tabl	e	<u> </u>	Ponding		Floc	ding
logic	Months	Upper limit	Lower	water	water	Duration	Frequency	Duration	Frequency
group		77.	   ===	table	-		1	1	1
		FC	FC 	 	FC   				1
	i i			İ	i i		i	i	İ
A	Jan-Dec	>6.0	>6.0		i i		None	j	None
							1	I	
							!	!	!
A	Jan-Dec	>6.0	>6.0				None		None
A		>6.0	   >6.0		 				
	į į		ĺ	İ	į į		İ	İ	İ
В	Jan-Dec	>6.0	>6.0				None		None
D	  Jan-Mar	>6.0	   >6.0		 		None		None
	: :		!	Perched	i i				None
	: - :		>6.0		i i		None	i	None
	: - :		!	1	i i				None
	: :		!	1	i i				None
	:		!	1	!!!			!	None
	: :		!		i i				None
	i			İ	į į			İ	İ
	į į		j	į	į į		į	İ	İ
A	Jan-Dec	>6.0	>6.0		i i		None		None
A	Jan-Dec	>6.0	>6.0				None		None
7.		>6 O					None	l	None
	Uan-Dec	70.0	20.0		 		None		None
A	Jan-Dec	>6.0	>6.0		 		None		None
					i i			i	
	i i		İ	İ	i i		į	į	İ
A	Jan-Dec	>6.0	>6.0	i	i i		None	i	None
	i			İ	i i			i	İ
A	Jan-Dec	>6.0	>6.0		i i		None		None
	į į		j	į	į į		İ	İ	İ
A	Jan-Dec	>6.0	>6.0				None		None
A	Jan-Dec	>6.0	>6.0				None		None
							!		!
	!!!			!					
A	Jan-Dec	>6.0	>6.0				None		None
_									
_ <b>_</b>	am-nec	>0.0	<i>&gt;</i> 0.0		   '		None		None
			! 						1
A	Jan-Dec	>6.0	>6.0		 		None		None
					' '			i	
В	Jan-Dec	>6.0	>6.0				None		None
	į i		j	į	į į		i	i	j
	l İ				ı i		1		
A	Jan-Dec	>6.0	>6.0		i i		None		None
	logic group  A  A  A  A  A  A  A  B  A  A  A  B  A  B  B	group  A Jan-Dec  A Jan-Dec  D Jan-Mar Apr May-Jun Jul Aug-Sep Oct Nov-Dec  A Jan-Dec  Simit   Simi	logic group	1 mit   1 mit   water   water   depth	Logic group	Logic     1 imit   1 imit   water   depth			

Table 21.--Water Features--Continued

	!			ter tabl			Ponding		Floo	
Map symbol		Months	Upper	Lower	1	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water	water				
	group	<u>                                     </u>		 	table	depth		1	<u> </u>	1
	 		Ft	Ft	I I	Ft		I I	l I	I I
305B:	 			 				 	 	
Wurtsmith	   в	  Jan-Feb	5.0	>6.0	Apparent			None		None
	i -	Mar	2.5	>6.0	Apparent			None		None
	İ	Apr-May	2.0	>6.0	Apparent			None	i	None
	į	Jun	3.5	>6.0	Apparent	i i		None	i	None
	ĺ	Jul	4.5	>6.0	Apparent			None		None
	ĺ	Aug	5.5	>6.0	Apparent			None		None
		Sep	4.5	>6.0	Apparent			None		None
		Oct-Nov	3.0	>6.0	Apparent			None		None
		Dec	4.0	>6.0	Apparent			None		None
								!	!	ļ
Meehan	C	Jan-Feb	1.5	>6.0	Apparent			None		None
		Mar	1.0	>6.0	Apparent			None		None
		Apr-May	0.5	>6.0	Apparent			None		None
		Jun	1.0	>6.0	Apparent			None		None
	I I	Jul	2.0	>6.0   >6.0	Apparent	 		None   None	 	None None
	I I	Aug   Sep	3.0 2.0	>6.0   >6.0	Apparent	 		None	 	None
	l I	Oct-Nov	1.0	>6.0	Apparent			None	 	None
	 	Dec	1.5	>6.0	Apparent			None		None
	 	200	1.5					110110	 	110110
306C:	İ	i i		İ	i			İ	İ	i
Deerton, dissected	A	Jan-Dec	>6.0	>6.0				None		None
	į	i i		İ	İ	i i		į	İ	į
Tokiahok, dissected	A	Jan-Dec	>6.0	>6.0		i i		None		None
	ĺ	į į		İ	İ			ĺ	ĺ	ĺ
Jeske, dissected	D	Jan-Feb	>6.0	>6.0				None		None
		Mar	1.5	1.7	Perched			None		None
		Apr	1.0	1.7	Perched			None		None
		May	0.5	1.7	Perched			None		None
		Jun-Sep	>6.0	>6.0				None		None
		Oct-Nov	1.0	1.7	Perched			None		None
		Dec	1.5	1.7	Perched			None		None
307B:	 			 	I I			I I	l I	I I
Rubicon, very deep	 			 				 	l I	
water table	   A	  Jan-Feb	10 5	>6.0	Apparent			None	l	None
water table		Mar	9.7	>6.0	Apparent			None	 	None
	İ	Apr-May	9.2	>6.0	Apparent			None		None
	İ	Jun	10.5	>6.0	Apparent			None		None
	į	Jul	12.4	>6.0	Apparent	i i		None	i	None
		Aug	12.5	>6.0	Apparent	i i		None	j	None
		Sep	10.5	>6.0	Apparent	i i		None	i	None
		Oct-Nov	9.2	>6.0	Apparent			None		None
		Dec	10.5	>6.0	Apparent			None		None
	ļ							ļ.	!	ļ
307D:	ļ							ļ.	!	[
Rubicon, very deep									ļ	
water table	A	Jan-Feb		>6.0	Apparent			None		None
		Mar	9.7	>6.0	Apparent			None		None
	l I	Apr-May		>6.0	Apparent			None		None
	I I	Jun	10.5 12.4	>6.0	Apparent	 		None	 	None
	I I	Jul   Aug	12.4	>6.0   >6.0	Apparent   Apparent	 		None None	 	None None
	I I	Aug     Sep	10.5	>6.0	Apparent	 		None	 	None
	İ	Oct-Nov	9.2	>6.0	Apparent			None	 	None
	İ	Dec	10.5	>6.0	Apparent			None	 	None
	İ		_,,,						İ	
308B:	İ	j i		<u> </u>	<u> </u>			į	İ	İ
Rubicon	A	Jan-Dec	>6.0	>6.0				None	i	None
				1					:	

Table 21.--Water Features--Continued

	'	wa	ter tabl	e 		Ponding		Floo	ding
-	Months	Upper	Lower		Surface	Duration	Frequency	Duration	Frequency
logic		limit	limit	water	water			!	!
group			1	table	depth		<u> </u>	<u> </u>	
		Ft	Ft		Ft	 	 	1	
	 		 	 	 	 	 	I I	l I
A	Jan-Dec	>6.0	>6.0				None	i	None
	į į		j	j		İ	İ	į	Ì
A	Jan-Dec	>6.0	>6.0				None		None
			 		 	 	 	1	
7	Ton Fob	7 2			 	l İ	   None	 	   None
A	!		!	:		!	!	!	None
	!		!	:			!	!	None
			!	:		!	!	!	None
			:	:			!	!	None
	:		:	:		! 	!	!	None
	-		!			! 	!	 	None
	: - :		!	:		 	!		None
			!	:			!		None
	i i					! 		i	
	i i		İ	i			! 	İ	i
	i i		İ	i		! 	İ	i	i
A	Jan-Feb	7.3	>6.0	Apparent			None	i	None
	Mar	4.8	>6.0	:			None	i	None
	Apr-May	4.3	>6.0	Apparent			None	i	None
	Jun	5.2	>6.0	Apparent			None		None
	Jul	6.2	>6.0	Apparent			None	i	None
	Aug	7.2	>6.0	Apparent			None	i	None
	Sep	6.2	>6.0	Apparent			None		None
	Oct-Nov	4.7	>6.0	Apparent			None		None
	Dec	5.7	>6.0	Apparent			None		None
									[
A	Jan-Dec	>6.0	>6.0				None		None
	!!!								
A	Jan-Dec	>6.0	>6.0				None		None
A	Jan-Dec	>6.0	>6.0				None		None
			 	1	 	l İ	l I	 	l I
	 		 	I I	l I	 	l I	 	I I
20.	  .Tan - Feb	10 5	   >6 0	Annarent	l I	l 	None		None
A			1	:		!	!	!	None
			:				!	!	None
	! !					 	'	!	None
						ı	'	1	None
							'		None
							'		None
									None
								i	None
	i i		İ	i		İ	İ	į	İ
	į i			İ			l	İ	İ
	į i			İ			İ	İ	İ
A	Jan-Feb	10.5	>6.0	Apparent			None	i	None
	Mar	9.7	>6.0	Apparent			None	j	None
	Apr-May	9.2	>6.0	Apparent			None	j	None
		10.5	>6.0	Apparent			None		None
	Jun	10.5	1						
	Jun     Jul	12.4	>6.0	Apparent			None	j	None
				:	!	 	None None	 	
	Jul	12.4	>6.0	Apparent		!		!	None
	Jul     Aug	12.4 12.5 10.5	>6.0 >6.0	Apparent Apparent	 		None		None None
	A	A Jan-Dec  A Jan-Feb Mar Apr-May Jun Jul Aug Sep Oct-Nov Dec  A Jan-Feb Mar Apr-May Jun Jul Aug Sep Oct-Nov Dec  A Jan-Dec  ug 7.2 >6.0  Aug 7.2 >6.0  Aug 7.2 >6.0  Aug 7.2 >6.0  Cot-Nov 4.7 >6.0  Dec 5.7 >6.0  A Jan-Dec >6.0 2 Sep 6.0 Apparent     Jul 7.2 Sep 6.0 Apparent     Jul 10.5 Sep 6.0 Apparent     Jul 10.5 Sep 6.0 Apparent     Jul 12.4 Sep 6.0 Apparent     Jul 12.4 Sep 6.0 Apparent     Aug 12.5 Sep 6.0 Apparent     Sep 10.5 nt  Dec 5.7 >6.0 Apparent  Apparent  Jun 5.2 >6.0 Apparent  Dec 5.7 >6.0 Apparent  Apparent  Aug 7.2 >6.0 Apparent  Aug 7.2 >6.0 Apparent  Apparent  Jun 5.2 >6.0 Apparent  Aug 7.2 >6.0 Apparent  Jun 5.2 >6.0 Apparent  Aug 7.2 t None  Apr-May 4.3 >6.0 Apparent None  Apr-May 4.3 >6.0 Apparent None  Apr-May 4.3 >6.0 Apparent None  Jul 6.2 >6.0 Apparent None  Apr-May 4.3 >6.0 Apparent None  Jul 5.2 >6.0 Apparent None  Oct-Nov 4.7 >6.0 Apparent None  Aug 7.2 >6.0 Apparent None  Oct-Nov 4.7 >6.0 Apparent None  Oct-Nov 4.7 >6.0 Apparent None  Oct-Nov 4.7 >6.0 Apparent None  Oct-Nov 4.7 >6.0 Apparent None  A Jan-Dec >6.0 >6.0 Apparent None  A Jan-Dec >6.0 >6.0 Apparent None  A Jan-Dec >6.0 >6.0 Apparent None  A Jan-Dec >6.0 >6.0 Apparent None  A Jan-Dec >6.0 Apparent None  A Jan-Dec >6.0 Apparent None  A Jan-Dec >6.0 Apparent None  A Jan-Dec >6.0 Apparent None  A Jan-Dec >6.0 Apparent None  A Jan-Dec >6.0 Apparent None  A Jan-Dec >6.0 Apparent None  A Jan-Dec >6.0 Apparent None  Apparent None  A Jan-Peb 10.5 Secon Apparent None  Apparen	A Jan-Dec >6.0 >6.0 None  A Jan-Dec >6.0 >6.0 None  A Jan-Feb 7.3 >6.0 Apparent None  Mar 4.8 >6.0 Apparent None  Jun 5.2 >6.0 Apparent None  Aug 7.2 >6.0 Apparent None  Sep 6.2 >6.0 Apparent None  Dec 5.7 >6.0 Apparent None  Apparent None None  Dec 5.7 >6.0 Apparent None  Apparent None None  Apparent None None  Apparent None None None  Apparent None None None None  Apparent None						

Table 21.--Water Features--Continued

l		Wa	ter tabl	e		Ponding		Floo	ding
Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequenc
logic		limit	limit	water	water				
group				table	depth			<u> </u>	
		Ft	Ft		Ft		[		
_									
A	Jan-Dec	>6.0	>6.0				None		None
 			 		 		 	 	l I
A	Jan-Dec	>6.0	>6.0		i		None		None
İ	į į		į	Ì	j j		İ	İ	j
A	Jan	7.3	>6.0	Apparent			None		None
	Feb-Dec	>6.0	>6.0				None		None
l I			 	1	 		 	l I	l I
! 			! 	! 	 		İ	I I	I I
ı A	Jan-Feb	10.5	>6.0	Apparent			None		None
	: :		!	:			!	!	None
	: :		!				!	!	None
	: :		!	:			!	!	None
	: :		!				!	!	None
	: :		!	:			!	!	None
l I	: - :		!	:			!	!	None
 	: - :		!	:			!	!	!
 	: :		!				!	!	None
l I	l Dec	8.9	>6.0 	Apparent	 		None	 	None
							i	i I	
i	i i		İ	i	i i		i	İ	i
A	Jan-Feb	7.3	>6.0	Apparent	i i		None	i	None
	: :		!	:			!	!	None
	: :		!				!	!	None
	: :		!	:			!		None
	: :		!				!	!	None
	: :		!				!	!	None
l I	: - :		!	:			!	!	None
l I	: - :		!	:			!	!	None
 	: :				 		!	 	None
i					i i			İ	
	į į		ĺ	ĺ	İ		ĺ	ĺ	ĺ
A	Jan-Dec	>6.0	>6.0				None		None
l A	  Jan-Dec	>6.0	   >6.0		 		None	 	None
	i			İ	i i		İ	İ	
	l İ				ĺ				
A	Jan-Feb	10.5	>6.0	Apparent			None		None
	Mar	9.7	>6.0	Apparent			None		None
	Apr-May	9.2	>6.0	Apparent			None		None
	Jun	10.5	>6.0	Apparent	i i		None	i	None
	Jul	12.4	>6.0				None	i	None
	Aug	12.5	>6.0	:			None	i	None
İ	Sep		>6.0				None	i	None
i	Oct-Nov		>6.0	Apparent			None		None
	1				 			t contract of	
	logic group  A  A  A	group    A	Hydro- Months Upper logic   limit group   Ft	Hydro-   Months   Upper   Lower   logic   limit   limit   group	Hydro-   Months   Upper   Lower   Kind of logic   limit   limit   water group	Hydro-   Months   Upper   Lower   Kind of Surface   limit   limit   water   water   depth	Hydro-   Months   Upper   Lower   Kind of   Surface   Duration   Surface   Duration   Limit   Limit   Water   Water   Water   Water   Water   Water	Rydro	Bydro   Months   Upper

Table 21.--Water Features--Continued

	1	ı		ter table		<u> </u>	Ponding	1	Floo	
Map symbol		Months	Upper	Lower	1	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic group	 	limit	limit 	water   table	water     depth		 	 	 
	Ī	Ī	Ft	Ft	Ī	Ft				Ī
	ļ							!	!	
17D:						!!!				
Kalkaska, very deep										
water table	A	Jan-Feb	10.5	>6.0	Apparent			None		None
		Mar	9.7	>6.0	Apparent			None		None
		Apr-May	9.2	>6.0	Apparent			None		None
		Jun	10.5	>6.0	Apparent			None		None
		Jul	12.4	>6.0	Apparent			None		None
		Aug	12.5	>6.0	Apparent			None		None
	į	Sep	10.5	>6.0	Apparent	i i		None		None
	i	Oct-Nov	9.2	>6.0	Apparent	i i		None	i	None
	į	Dec	10.5	>6.0	Apparent	i i		None	j	None
318B:	 				 	 		 	 	 
Islandlake, very deep	į	į i		į	i	į i		İ	İ	i
water table	A	Jan-Feb	10.5	>6.0	Apparent	i i		None		None
	i	Mar	9.7	>6.0	Apparent	: :		None		None
	 	Apr-May	9.2	>6.0	Apparent			None	 	None
	l I	Jun	10.5	>6.0	Apparent	!!!		None	l	None
	l I	Jul	12.4	>6.0	:	 		None	 	None
	 	: :			Apparent	!!!			!	
		Aug	12.5	>6.0	Apparent	: :		None		None
		Sep	10.5	>6.0	Apparent			None		None
	!	Oct-Nov	9.2	>6.0	Apparent			None		None
	 	Dec	10.5	>6.0	Apparent			None	 	None
318D:	 				1	 			 	 
Islandlake, very deep	į	i i		İ	İ	i i		İ	İ	i
water table	A	Jan-Feb	10.5	>6.0	Apparent	i i		None	i	None
	i	Mar	9.7	>6.0	Apparent	: :		None		None
	 	Apr-May	9.2	>6.0	Apparent	 		None	 	None
	l I	Jun	10.5	>6.0		 		None	 	None
	 	1 1			Apparent	 			 	
		Jul	12.4	>6.0	Apparent	!!!		None	!	None
		Aug	12.5	>6.0	Apparent	: :		None		None
	!	Sep	9.4	>6.0	Apparent			None		None
		Oct-Nov	7.9	>6.0	Apparent			None		None
		Dec	8.9	>6.0	Apparent			None		None
319B:		 		 		 			 	
Islandlake	A	Jan-Dec	>6.0	>6.0				None		None
319D:	l I	 		 	l I	 		 	 	l I
Islandlake	A	Jan-Dec	>6.0	>6.0		i i		None		None
					ļ					
319E:					1				l I	
Islandlake	A	Jan-Dec	>6.0	>6.0		 		None	 	None
319F:	İ							İ	İ	
Islandlake	A	Jan-Dec	>6.0	>6.0		i i		None	i	None
320B:										
Kalkaska, deep water	İ	į į		İ	İ	į į		ĺ	ĺ	İ
table	A	Jan-Feb	7.3	>6.0	Apparent	i i		None	i	None
	i	Mar	4.8	>6.0	Apparent	: :		None		None
	i	Apr-May	4.3	>6.0	Apparent			None		None
	İ	Jun	5.2	>6.0	Apparent	: :		None	 	None
	I I	Jul	6.2	>6.0	Apparent	: :		None	l	None
	I I	: :			:	: :			 	1
	 	Aug	7.2	>6.0	Apparent	: :		None	!	None
		Sep	6.2	>6.0	Apparent	: :		None		None
	[	Oct-Nov	4.7	>6.0	Apparent	: :		None		None
		Dec	5.7	>6.0	Apparent			None		None

Table 21.--Water Features--Continued

			Wa	ter table	9		Ponding	ī	Floo	ding
Map symbol	Hydro-	Months	Upper	Lower	Kind of	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water	water				
	group				table	depth				
			Ft	Ft		Ft				
321B:	 					 			 	
Kalkaska	A	Jan-Dec	>6.0	>6.0				None		None
Deerton	   A	  Jan-Dec	>6.0	>6.0				None	 	None
321D:	 	 				 			 	
Kalkaska	A	Jan-Dec	>6.0	>6.0				None		None
Deerton	l A	  Jan-Dec	>6.0	   >6.0	 	 		None	 	None

Table 22.--Classification of the Soils

Soil name	Family or higher taxonomic class
Abbave	Coarse-loamy, mixed, active, frigid Alfic Oxyaquic Haplorthods
_	Sandy, mixed, frigid Typic Endoaquods
	Sandy, isotic, frigid, shallow Oxyaquic Haplorthods
	Sandy, mixed, frigid Lamellic Haplorthods
	Sandy-skeletal, mixed, frigid Lithic Udorthents
	Siliceous, frigid Lithic Psammaquents
	Euic, frigid Hemic Haplosaprists
	Loamy, mixed, euic, frigid Terric Haplosaprists
	Coarse-loamy, mixed, semiactive, frigid Argic Endoaquods
	Loamy-skeletal, mixed, active, frigid Typic Dystrudepts
	Euic, frigid Lithic Haplosaprists
	Loamy-skeletal, mixed, superactive, frigid Oxyaquic Haplorthods
	Coarse-loamy, mixed, superactive, frigid Alfic Haplorthods
	Sandy, mixed, frigid Oxyaquic Haplorthods
	Sandy, isotic, frigid Typic Haplorthods
	Sandy-skeletal, mixed, frigid Typic Endoaquepts
Dawson	Sandy or sandy-skeletal, mixed, dysic, frigid Terric Haplosaprists
	Mixed, frigid Spodic Udipsamments
	Sandy, mixed, frigid Typic Haplorthods
Deford	Mixed, frigid Typic Psammaquents
Dillingham	Sandy, isotic, frigid Typic Fragiorthods
Eben	Sandy-skeletal, mixed, frigid Typic Hapludolls
Ensign	Loamy, mixed, superactive, frigid Lithic Eutrudepts
Ensley	Coarse-loamy, mixed, active, nonacid, frigid Aeric Endoaquents
Escanaba	Sandy over loamy, mixed, superactive, frigid Alfic Haplorthods
Evart	Sandy, mixed, frigid Fluvaquentic Endoaquolls
Fence	Coarse-silty, mixed, superactive, frigid Alfic Oxyaquic Haplorthods
Finch	Sandy, mixed, frigid, shallow, ortstein Typic Duraquods
	Coarse-loamy, mixed, active, frigid Alfic Fragiorthods
	Sandy, mixed, frigid Typic Haplorthods
-	Sandy, mixed, frigid, ortstein Typic Haplorthods
	Coarse-loamy, mixed, active, nonacid, frigid Aeric Endoaquepts
_	Siliceous, frigid, shallow Typic Psammaquents
_	Sandy, aniso, isotic, frigid Typic Udorthents
	Dysic, frigid Typic Haplohemists
_	Coarse-loamy, mixed, active, frigid Alfic Haplorthods
	Sandy, mixed, frigid Oxyaquic Haplorthods
_	Sandy over loamy, mixed, active, frigid Typic Endoaquods
	Sandy, mixed, frigid Lamellic Haplorthods
	Coarse-loamy, mixed, active, nonacid, frigid Aeric Endoaquepts
	Siliceous, acid, frigid, shallow Typic Psammaquents
	Sandy, isotic, frigid Typic Haplorthods
	Sandy, mixed, frigid Typic Endoaquods
	Sandy, mixed, frigid Entic Haplorthods
	Siliceous, frigid Lithic Psammaquents
-	Sandy, mixed, frigid Typic Haplorthods
Longrie	Coarse-loamy, mixed, superactive, frigid Typic Haplorthods
Loxley	Dysic, frigid Typic Haplosaprists
Lupton	Euic, frigid Typic Haplosaprists
Markey	Sandy or sandy-skeletal, mixed, euic Terric Haplosaprists
Mashek	Coarse-loamy, mixed, active, frigid Alfic Oxyaquic Haplorthods
	Sandy-skeletal, mixed, frigid Oxyaquic Haplorthods
	Sandy, mixed, frigid Lamellic Haplorthods
	Mixed, frigid Aquic Udipsamments
	Fine, mixed, semiactive, frigid Haplic Glossudalfs
-	Coarse-loamy, mixed, active, frigid Alfic Oxyaquic Fragiorthods
-	Coarse-loamy, mixed, active, nonacid, frigid Histic Humaquepts
	Loamy, mixed, semiactive, frigid Lithic Hapludolls
	Coarse-loamy, isotic, frigid Oxyaquic Eutrudepts
_	
	Sandy-skeletal, mixed, frigid Alfic Oxyaquic Fragiorthods
_	Sandy, mixed, frigid, shallow, ortstein Typic Durorthods
	Coarse-loamy, mixed, superactive, frigid Alfic Oxyaquic Haplorthods
	Coarse-silty over sandy or sandy-skeletal, mixed, active, frigid Typic

Table 22.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Rousseau	   Sandy, mixed, frigid Entic Haplorthods
	Sandy, mixed, frigid Entic Haplorthods
	Loamy, mixed, active, frigid Lithic Endoaquolls
	Sandy-skeletal, mixed, frigid Lithic Udorthents
	Frigid, uncoated Typic Quartzipsamments
	Sandy, mixed, frigid Lithic Haplorthods
_	Coarse-loamy, mixed, superactive, frigid Alfic Oxyaquic Haplorthods
-	Dysic, frigid Lithic Haplosaprists
	Coarse-loamy, mixed, active, frigid Argic Fragiaquods
	Sandy, mixed, frigid, shallow, ortstein Typic Duraquods
-	Coarse-loamy, mixed, active, frigid Alfic Fragiorthods
	Coarse-silty over sandy or sandy-skeletal, mixed, superactive, nonacid
-	frigid Aquic Udifluvents
Stutts	Sandy, isotic, frigid Typic Haplorthods
Sultz	Sandy, mixed, frigid Entic Haplorthods
Summerville	Loamy, mixed, active, frigid Lithic Eutrudepts
Tawas	Sandy or sandy-skeletal, mixed, euic, frigid Terric Haplosaprists
Tokiahok	Sandy, mixed, frigid Alfic Fragiorthods
Towes	Coarse-silty over sandy or sandy-skeletal, mixed, active, frigid Aquic
	Hapludolls
Traunik	Sandy-skeletal, mixed, frigid Typic Haplorthods
Trenary	Coarse-loamy, mixed, semiactive, frigid Alfic Haplorthods
Trout Bay	Euic, frigid Lithic Haplosaprists
Voelker	- Sandy, mixed, frigid, shallow, ortstein Typic Durorthods
Waiska	- Sandy-skeletal, mixed, frigid Typic Haplorthods
Wallace	Sandy, mixed, frigid, shallow, ortstein Typic Durorthods
Whitewash	- Sandy, mixed, frigid Typic Udifluvents
Wurtsmith	- Mixed, frigid Oxyaquic Udipsamments
Yalmer	- Sandy, mixed, frigid Alfic Oxyaquic Fragiorthods
Yellowdog	- Sandy-skeletal, mixed, frigid Typic Udorthents
Zeba	-   Coarse-loamy, mixed, active, frigid Argic Endoaquods

# **Interpretive Groups**

#### Interpretive Groups

(Unless otherwise indicated, a complex is treated as a single management unit in the Land capability classification column. See text for definitions of the groups. Absence of an entry indicates that the map unit is not suited to the intended use or that an interpretive group is not assigned)

Map symbol and soil name	Land capability  classification 	Michigan   soil   management   group	Prime   farmland   category	Hydric   soil   status	Habitat type (primary/ secondary)
10Beaches	   8 	  None assigned 	  Not prime farmland	  Not applicable 	   None assigned 
11C Deer Park	   7s 	   5.3a 	  Not prime farmland	   Not hydric 	   PVC/QAE 
11E Deer Park	   7s 	   5.3a 	  Not prime farmland	   Not hydric 	   PVC/QAE 
11F Deer Park	   7s 	   5.3a 	  Not prime farmland	   Not hydric 	   PVC/QAE 
12B Rubicon	   6s 	   5.3a 	  Not prime farmland	   Not hydric 	   AQV/QAE 
12D Rubicon	   7s 	   5.3a 	  Not prime farmland	   Not hydric 	   AQV/QAE 
12E Rubicon	   7s 	   5.3a 	  Not prime farmland	   Not hydric 	   AQV/QAE 
13B Kalkaska	   4s 	   5a 	  Not prime farmland	Not hydric	   ATD-D 
13D Kalkaska	   6s 	   5a 	  Not prime farmland	Not hydric	   ATD-D 
13EKalkaska	   7s 	   5a 	  Not prime farmland	Not hydric	   ATD-D 
15ACroswell	   4s 	   5a 	  Not prime farmland	Not hydric	   AQV 
16A Paquin	   6s 	   5a-h 	  Not prime farmland	Not hydric	   ATD-D/TMC 
17AAu Gres	   4w 	   5b 	  Not prime farmland	Not hydric	   TMC-V 
18 Kinross	   6₩ 	   5c-a 	  Not prime farmland	   Hydric 	   TTS 
19 Deford	   5w 	   4c 	  Not prime farmland	   Hydric 	   FMC/TMC 
21A Ingalls	   3w 	   4/2b 	Prime farmland*	Not hydric	   TMC-D 
24B Munising	   2e 	   3a-af 	  Not prime farmland	Not hydric	   ATD 
25B Munising Yalmer	1	   3a-af   4a-a	  Not prime farmland 	   Not hydric   Not hydric	     ATD   ATD

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Prime	Hydric soil status	Habitat type (primary/ secondary)
25D Munising Yalmer		3a-af 4a-a	  Not prime farmland    	Not hydric Not hydric	   ATD   ATD
31D Trenary	3e   	3a	Prime farmland	Not hydric	AVO
33Ensley	5w	3с	Prime farmland*   	Hydric	FI/TTM
35B Munising, calcareous			  Not prime farmland		
<pre>substratum Yalmer, calcareous</pre>		3a-af		Not hydric	ATD/AVO
<pre>substratum Frohling, calcareous</pre>		4a-a		Not hydric	ATD/AVO
substratum	į	3a-f	į	Not hydric	ATD/AVO
37B Grand Sable	2e   	4a	Not prime farmland	Not hydric	ATD/AVO
7E Grand Sable	   6e   	4a	  Not prime farmland  	Not hydric	AVO
88B Rhody Towes	5w   	Rbc 2/Rbc	  Not prime farmland    	Hydric Not hydric	TTM
Waiska, very stony		Ga	Not prime farmland	Not hydric	   ATD 
2 Davies	5w     5w	5c	  Not prime farmland  	Not hydric	FI
d6 Jacobsville, very stony	5w	3/Rbc	  Not prime farmland  	Hydric	TMC/TTM
7C Deerton Au Train	6s     6	4/Ra 4/Ra	Not prime farmland	Not hydric Not hydric	ATD-D
7E Deerton Au Train	7s	4/Ra 4/Ra	Not prime farmland	Not hydric Not hydric	ATD-D
8 Burt	3w	Rbc	  Not prime farmland  	Hydric	TMC/TTM
9B Cookson	2e   	3/Ra	Prime farmland	Not hydric	AVO
11 Nahma Ruse		3/Rbc Rbc	  Not prime farmland    	Hydric Hydric	TTM
52B Summerville	2e	Ra	  Not prime farmland  	Not hydric	AVO-A

Interpretive Groups--Continued

Map symbol and soil name	Land capability  classification   	Michigan   soil   management   group	Prime farmland category	Hydric   soil   status	Habitat type   (primary/   secondary)
57	   6w   	   Mc   Mc   M/4c	Not prime farmland	   Hydric   Hydric   Hydric	TTM/TTS TTM/TTS TTM
58 Dawson Greenwood Loxley	7w   	   M/4c-a   Mc-a   Mc-a	Not prime farmland	   Hydric   Hydric   Hydric	PCS PCS PCS
59 Chippeny Nahma	6w   	   M/Rc   3/Rbc	Not prime farmland	   Hydric   Hydric	TTM/TTS
60 Histosols Aquents 61.	8w     	  None assigned  None assigned 	Not prime farmland 	   Hydric   Hydric 	   None assigned   None assigned
Pits 62F. Udipsamments and Udorthents	       	       		       	
64B Kiva	2e	   4a 	Not prime farmland	   Not hydric 	AVO
64D Kiva	]   3e 	   4a 		   Not hydric 	AVO
Jeske, bedrock terrace Gongeau, bedrock terrace Deerton, bedrock terrace	:	Rbc   Rbc   4/Rbc   4/Ra	Not prime farmland	   Not hydric   Hydric   Not hydric	TMC TMC ATD-D
Jeske, bedrock terrace- Gongeau, bedrock terrace Deerton, bedrock terrace		   Rbc   4/Rbc   4/Ra	Not prime farmland	   Not hydric   Hydric   Not hydric	TMC TMC-D ATD-D
66D Ruse, bedrock terrace Ensign, bedrock terrace Nykanen, bedrock terrace		   Rbc   Rbc   Ra	Not prime farmland	Hydric Not hydric Not hydric	AVO-CI AVO-CI AVO-A
66F Ruse, bedrock terrace Ensign, bedrock terrace Nykanen, bedrock terrace		   Rbc   Rbc   Ra	Not prime farmland	Hydric Not hydric Not hydric	AVO-CI AVO-CI AVO-A
68. Pits, quarry	 	 		 	
69B Escanaba	   3s 	   4/2a 	  Not prime farmland	   Not hydric 	ATD/AVO
71A Evart Sturgeon	   5w 	   L-4c   L-2b	Not prime farmland	Hydric Not hydric	FMC

Interpretive Groups--Continued

Map symbol and soil name	Land capability   classification   	Michigan soil management group	Prime   farmland   category	Hydric soil status	Habitat type   (primary/   secondary)
	į į		İ		İ
72E	6w	4.4-	Not prime farmland		
Deerton, dissected		4/Ra		Not hydric	ATD-D
Tokiahok, dissected		4a-af		Not hydric	ATD-D
Trout Bay, dissected	 	M/Rc		Hydric	ATD-CI
72F			Not prime farmland		
Deerton, dissected		4/Ra		Not hydric	ATD-D
Tokiahok, dissected	i i	4a-af		Not hydric	ATD-D
Trout Bay, dissected	į į	M/Rc		Hydric	ATD-CI
	į į		j		j
76C	6s		Not prime farmland		
Garlic, dissected		5.3a		Not hydric	ATD-D
Blue Lake, dissected		4a		Not hydric	ATD-D
Voelker, dissected	[	4a-h		Not hydric	ATD-D
76E	7s		Not prime farmland		
Garlic, dissected		5.3a		Not hydric	ATD-D
Blue Lake, dissected		4a		Not hydric	ATD-D
Voelker, dissected	 	4a-h		Not hydric	ATD-D
76F	   7s		Not prime farmland		
Garlic, dissected	/6	5.3a	Not prime rankrand	Not hydric	ATD-D
Blue Lake, dissected	! ! !	4a		Not hydric	ATD-D
Voelker, dissected	! ! !	4a-h		Not hydric	ATD-D
, 41220004				1.00 11,4110	
77B	3s		Not prime farmland		i
Garlic	i i	5.3a	-	Not hydric	ATD-D
Blue Lake	i i	4a		Not hydric	ATD-D
Voelker	į į	4a-h	j	Not hydric	ATD-D
77D	6s		Not prime farmland		
Garlic		5.3a		Not hydric	ATD-D
Blue Lake		4a		Not hydric	ATD-D
Voelker		4a-h		Not hydric	ATD-D
777			   Nat		
77E Garlic	6e	5.3a	Not prime farmland	Not hydric	ATD-D
Blue Lake	 	4a		Not hydric	ATD-D
Voelker		4a-h		Not hydric	ATD-D
VOCINCI	! !	14 11		Not Hydric	1115 5
88	6w		Not prime farmland		i
Cathro	i i	M/3c	-	Hydric	TTM
Ensley	i i	3c	į	Hydric	FI
	į į		j		j
93	6w		Not prime farmland		
Tawas		M/4c		Hydric	TTM
Deford		4c		Hydric	TMC
95B	3s	5a	Not prime farmland	Not hydric	ATD
Liminga					
104C	30	3-	  Not prime fermi	Not budge	700
	3e	3a	Not prime farmland	Not hydric	ATD
Fence, dissected					1
109D	4e		Not prime farmland		1
Rousseau	4e	5a	Not prime farmland	Not hydric	03 =
	!		I	NOT HAGEIG	QAE
Dawson		M/4c-a		Hydric	PCS

Interpretive Groups--Continued

Map symbol and soil name	  Land capability   classification   	Michigan soil management	Prime     farmland     category	Hydric soil status	Habitat type   (primary/   secondary)
		group			
.09F			  Not prime farmland		
Rousseau	į į	5a	i i	Not hydric	AQV
Dawson	į į	M/4c-a	į į	Hydric	PCS
.25B	   4e		  Not prime farmland		
Stutts	i i	4a	i i	Not hydric	ATD
Kalkaska	į į	4a	į į	Not hydric	ATD
.25D			  Not prime farmland		
Stutts		4a		Not hydric	ATD
Kalkaska		4a		Not hydric	ATD
25E			  Not prime farmland		
Stutts		4a		Not hydric	ATD
Kalkaska		4a		Not hydric	ATD
.35B	5w		Not prime farmland		
Munising, calcareous	ļ l		į l		!
substratum		3a-af	[	Not hydric	ATD/AVO
Ensley	 	3с		Hydric	FI
45C	6s		Not prime farmland		į
Munising, dissected, very stony	 	3a-af		Not hydric	ATD
Yalmer, dissected, very	į į		į į		İ
stony		4a-a		Not hydric	ATD
46B	4w		  Not prime farmland		
Munising, stony		3a-af		Not hydric	ATD
Skanee, stony	 	3b-a		Not hydric	TMC
47A	5w		Not prime farmland		
Skanee, very stony		3b-a	!	Not hydric	TMC
Gay, very stony	 	3с		Hydric	TMC/FMC
48B Shoepac	3s	2 -	Prime farmland*	No. 1. Accordant to	3 mp /3220
Ensley	 	3a 3c		Not hydric	ATD/AVO
FURTEA		30		Hydric	
.55A	3s		Not prime farmland		
Zeba, very stony		3/Rbc	!	Not hydric	TMC
Jacobsville, very stony	 	3/Rbc		Hydric	TMC/FI
57B	5 <b>w</b>		Not prime farmland		į
Reade		3/Ra		Not hydric	AVO
Nahma	 	3/Rbc		Hydric	TTM
.58C	3e		Not prime farmland		
Munising, dissected,		2 - 6		37 to 30 2 2	
stony		3a-af		Not hydric	ATD
Abbaye, dissected, stony		3/Ra		Not hydric	ATD
60B	6s		Not prime farmland		
Paquin		5a-h		Not hydric	ATD-D
Finch		5b-h		Not hydric	TMC-V
61B	6s		Not prime farmland		İ
	1	4/Ra		Not hydric	ATD-D
Yellowdog, stony Buckroe, stony	!	Ra	!	Not hydric	ATD-D

Interpretive Groups--Continued

Map symbol and soil name	  Land capability   classification	Michigan soil	Prime     farmland	Hydric soil	   Habitat type   (primary/
		management group	category	status	secondary)
165B Chocolay, very stony Waiska, very stony	į į	3/Ra Ga	  Not prime farmland   	Not hydric Not hydric	     ATD   ATD
166 Skandia	7w	M/Rc	  Not prime farmland  	Hydric	   PCS/PO 
167 Skandia, stony Jacobsville, stony	į į	M/Rc 3/Rbc	  Not prime farmland  	Hydric Hydric	   PO   TMC
170B Chocolay, very stony	   6s   	3/Ra	  Not prime farmland  	Not hydric	   ATD 
171B Paavola, very stony	   6s   	Ga	  Not prime farmland  	Not hydric	ATD
172D Buckroe, very bouldery Rock outcrop.	!	Ra	Not prime farmland	Not hydric	     ATD-D 
172FBuckroe, very boulderyRock outcrop.	!	Ra	Not prime farmland	Not hydric	     ATD-D 
176B Croswell Kinross	4s   	5a 5c-a	Not prime farmland	Not hydric Hydric	AQV
181E Frohling, dissected, stony	j j	3a-af	Not prime farmland	Not hydric	       ATD
Tokiahok, dissected, stony		4a-af		Not hydric	ATD
185B McMaster	   6s   	5.3a	Not prime farmland	Not hydric	AVO
186BChatham, stony	   3s   	3 <b>a</b>	  Not prime farmland	Not hydric	AVO-A
186D Chatham, stony	   6s   	3a	  Not prime farmland  	Not hydric	AVO-A
187B Reade		3/Ra	  Not prime farmland  	Not hydric	   AVO-A/AVO 
188B Eben, stony	   6s   	3/5a	  Not prime farmland  	Not hydric	AVO-A/AOC
188D Eben, stony	   6s   	3/5a	  Not prime farmland  	Not hydric	AVO-A/AOC
188E Eben, stony	   7s   	3/5a	  Not prime farmland  	Not hydric	AVO-A/AOC
191B Ruse Ensign	7w     7w   	Rbc Rbc	  Not prime farmland   	Hydric Not hydric	 

Interpretive Groups--Continued

Map symbol and soil name	Land capability	Michigan soil management group	Prime farmland category	Hydric soil status	Habitat type   (primary/   secondary)
1978			Prime farmland		İ
Shoepac	i	3a	i i	Not hydric	ATD/AVO
Trenary		3a	į į	Not hydric	AVO/ATD
198B	   3s		Prime farmland		
Shoepac	i	3a	i i	Not hydric	ATD/AVO
Reade		3/Ra	į į	Not hydric	AVO
200A	   5w		Prime farmland*		
Charlevoix		3b	i i i	Not hydric	TMC/TMC-D
Ensley		3c	į į	Hydric	FI/TTM
202B Sauxhead, very stony	   6s   	Ra	  Not prime farmland  	Not hydric	   ATD-D 
206B	   6s	5.7a	  Not prime farmland	Not hydric	AVO-A/AVO
Traunik					
206D Traunik	6s	5.7a	Not prime farmland	Not hydric	AVO-A/AVO
211B	   2e		  Not prime farmland		
Munising	į	3a-af	į į	Not hydric	ATD
Abbaye		3/Ra		Not hydric	ATD
214B	3s		  Not prime farmland		
Kalkaska		5a		Not hydric	ATD-D
Blue Lake		4a		Not hydric	ATD-D
214D	3e		Not prime farmland		
Kalkaska		5a		Not hydric	ATD-D
Blue Lake	 	4a		Not hydric	ATD-D
214E	6e		Not prime farmland		
Kalkaska		5a		Not hydric	ATD-D
Blue Lake	 	4a		Not hydric	ATD-D
221B	5w		Not prime farmland		
Jeske		Rbc	!!!!	Not hydric	TMC
Au Train		4/Ra	!	Not hydric	ATD-D
Gongeau		4/Rbc		Hydric	TMC
225B Cusino	4s	5a	Not prime farmland	Not hydric	ATD-D
225D Cusino	   6s   	5a	  Not prime farmland  	Not hydric	ATD-D
226B	   4s		  Not prime farmland		
Kalkaska	<u> </u>	5a	į -	Not hydric	ATD-D
Cusino		5a		Not hydric	ATD-D
226D	   6s		  Not prime farmland		
Kalkaska	į į	5a	į į	Not hydric	ATD-D
Cusino		5a	į	Not hydric	ATD-D
226E	   7s		  Not prime farmland		
** - 1 11	· 	5a	i -	Not hydric	ATD-D
Kalkaska		Ju			

Interpretive Groups--Continued

Map symbol and soil name	Land capability   classification	Michigan soil management group	Prime   farmland   category	Hydric soil status	Habitat type   (primary/   secondary)
226F Kalkaska Cusino	7s     7s   	5a 5a	  Not prime farmland  	Not hydric Not hydric	ATD-D
227A Halfaday		5a	  Not prime farmland  	Not hydric	ATD-D/TMC-D
32BShelldrake	   6s   	5.3a	  Not prime farmland  	Not hydric	ATD-D/QAE
Abbaye, very stony Zeba, very stony		3/Ra 3/Rbc	Not prime farmland    	Not hydric Not hydric	   ATD   TMC
234A Levasseur, very stony Burt, very stony	7s     7s   	Rbc Rbc	Not prime farmland  	Not hydric Hydric	TMC
Sauxhead, very stony Burt, very stony	7w	Ra Rbc	Not prime farmland	Not hydric Hydric	ATD-D
36B Waiska, extremely bouldery	4s     4s	Ga	Not prime farmland	Not hydric	ATD
236D Waiska, extremely bouldery	6s     6	Ga	Not prime farmland  	Not hydric	ATD
37B Chatham Davies	3s	3a 5c	Prime farmland*   	Not hydric Hydric	AVO
239B Longrie Shingleton	4s   	3/Ra Ra	Not prime farmland	Not hydric Not hydric	AVO-A
240F	5w	M/Rc 4/Rbc Ra	Not prime farmland  	Hydric Hydric Not hydric	ATD-CI ATD-CI AVO
241CathroGay	6w     6w   	M/3c 3c	  Not prime farmland    	Hydric Hydric	TTM
42B Kalkaska, severely burned	4s     4s	5a	Not prime farmland	Not hydric	PVD
42D Kalkaska, severely burned	   6s   	5a	Not prime farmland  	Not hydric	PVD
42FKalkaska, severely	7s     7	5a	  Not prime farmland  	Not hydric	   ATD-D/AQV 

Interpretive Groups--Continued

Map symbol and soil name	Land capability   classification   	Michigan soil management group	Prime     farmland     category	Hydric soil status	Habitat type   (primary/   secondary)
243 Markey	6w	M/4c	  Not prime farmland  	Hydric	   None assigned 
245B Trout Bay Lupton Gongeau	5w   	M/Rc Mc 4/Rbc	Not prime farmland  	Hydric Hydric Hydric	   TTM   TTM/TTS   TTM/TMC
246BGarlic	4s	5.3a	Not prime farmland	Not hydric	ATD-D
246DGarlic	   6s   	5.3a	Not prime farmland  	Not hydric	ATD-D
246EGarlic	7s     7s	5.3a	Not prime farmland	Not hydric	ATD-D
248B Escanaba Greylock	3s           	4/2a 3a	Not prime farmland	Not hydric Not hydric	AVO/ATD
248D Escanaba Greylock	3e     3e   	4/2a 3a	Not prime farmland	Not hydric Not hydric	AVO/ATD
248E Escanaba Greylock	6e	4/2a 3a	Not prime farmland	Not hydric Not hydric	AVO/ATD
249B Sauxhead Skandia	7w   	Ra M/Rc	Not prime farmland	Not hydric Hydric	TMV PCS/PO
250B Chocolay, extremely stony	i i	3/Ra	Not prime farmland	Not hydric	ATD
Jacobsville, extremely stony	 	3/Rbc		Hydric	TMC
251B Greylock	2e   	3a	Prime farmland	Not hydric	AVO
251DGreylock	   3e   	3a	  Not prime farmland  	Not hydric	AVO
252A Finch Kinross	6w	5b-h 5c-a	Not prime farmland  	Not hydric Hydric	TMC-V
254C Kalkaska, dissected Blue Lake, dissected	i i	5a 4a	Not prime farmland	Not hydric Not hydric	ATD-D
254E Kalkaska, dissected Blue Lake, dissected	i i	5a 4a	Not prime farmland  	Not hydric	ATD-D

Interpretive Groups--Continued

Map symbol and soil name	  Land capability   classification   	Michigan soil management group	Prime   farmland   category	Hydric soil status	Habitat type (primary/ secondary)
254F		5a	  Not prime farmland	Wat budada	
Kalkaska, dissected Blue Lake, dissected		4a		Not hydric Not hydric	ATD-D ATD-D
255D Wallace		5a-h	  Not prime farmland  	Not hydric	   <b>TM</b> 
256B Whitewash	3s   	5.7a	  Not prime farmland  	Not hydric	AVO
266A			  Not prime farmland		
SpotFinch		5c-h 5b-h		Hydric Not hydric	TTS
267A Finch	4w	5b-h	Not prime farmland	Not hydric	TMC-V
268C Munising, calcareous			  Not prime farmland  		
substratum, dissected Frohling, calcareous		3a-af		Not hydric	ATD/AVO
substratum, dissectedCookson, dissected	 	3a-f 3/Ra		Not hydric Not hydric	ATD/AVO ATD/AVO
269E Frohling, calcareous			  Not prime farmland  		
substratum, dissected Garlic, dissected		3a-f 5.3a		Not hydric Not hydric	ATD/AVO
Cookson, dissected		3/Ra		Not hydric	ATD/AVO
272C Munising, calcareous			  Not prime farmland		
substratum, dissected Yalmer, calcareous		3a-af		Not hydric	ATD/AVO
substratum, dissected Frohling, calcareous		4a-a		Not hydric	ATD/AVO
substratum, dissected	j i	3a-f	į į	Not hydric	ATD/AVO
275B Munising, calcareous	2e		Not prime farmland		
substratum		3a-af		Not hydric	ATD/AVO
Cookson		3/Ra		Not hydric	AVO
281E Mongo, dissected	7e     7	1.5a	Not prime farmland	Not hydric	ATD
282B	4s		  Not prime farmland		
Furlong Shingleton		4/Ra Ra		Not hydric Not hydric	AVO AVO
282D	4e	4.1-	Not prime farmland		
Furlong Shingleton	 	4/Ra Ra		Not hydric Not hydric	AVO AVO
284B	3s		Not prime farmland		
Steuben Blue Lake	 	3a 4a		Not hydric Not hydric	ATD ATD-D
Kalkaska		5a		Not hydric	ATD-D

Interpretive Groups--Continued

Map symbol and soil name	Land capability   classification	Michigan soil	Prime   farmland	Hydric soil	Habitat type
		management group	category	status	secondary)
84D			  Not prime farmland	 	
Steuben	į į	3a		Not hydric	ATD
Blue Lake	į į	4a	İ	Not hydric	ATD-D
Kalkaska	į į	5a	İ	Not hydric	ATD-D
84E	6e		  Not prime farmland		
Steuben		3a		Not hydric	ATD
Blue Lake		4a		Not hydric	ATD-D
Kalkaska		5a		Not hydric	ATD-D
85B	6w		Not prime farmland		
Halfaday		5a		Not hydric	ATD-D
Kinross		5c-a		Hydric	TTS
86B	2e		  Not prime farmland		
Greylock		3a		Not hydric	AVO
Cookson		3/Ra		Not hydric	AVO
287B	5w		  Not prime farmland		
McMaster		5.3a		Not hydric	AVO/ATD
Davies		5c		Hydric	TMC/TTM
90A	7w		  Not prime farmland		
Namur, very stony		Ra		Not hydric	TM
Ruse, very stony		Rbc		Hydric	TTM
92B	2e	3a	  Not prime farmland	Not hydric	AVO
Mashek, sandy substratum					
96D	4e		  Not prime farmland		
Islandlake		5a		Not hydric	ATD-D
McMillan		4a		Not hydric	ATD
296E	6e		  Not prime farmland		
Islandlake		5a		Not hydric	ATD-D
McMillan		4a		Not hydric	ATD
97B	   6s	5.3a	  Not prime farmland	Not hydric	PVD/QAE
Rubicon, severely burned					
297D		5.3a	  Not prime farmland	Not hydric	PVD/QAE
Rubicon, severely burned					
98B			  Not prime farmland	 	
Wurtsmith	į į	5a		Not hydric	TM
Deford		4c		Hydric	FI
99F	   7s	5.3a	  Not prime farmland	   Not hydric	   ATD
Shelldrake					
00F			  Not prime farmland	 	
Shelldrake	į į	5.3a		Not hydric	TMV
Dune land		5.7a		Not hydric	None assigne
301F			  Not prime farmland	 	
Cookson, dissected	į į	3/Ra		Not hydric	AVO
Nykanen, dissected	i i	Ra	The second secon	Not hydric	AVO-CI

Interpretive Groups--Continued

	I I				T
Map symbol and soil name	  Land capability   classification	Michigan soil	Prime   farmland	Hydric soil	Habitat type
	 	management group	category	status	secondary)
302B	4s		Not prime farmland		
Dillingham	į į	4a	i i	Not hydric	ATD-D
Kalkaska	į	5a	į	Not hydric	ATD-D
302D	   6s		  Not prime farmland		
Dillingham		4a		Not hydric	ATD-D
Kalkaska		5a		Not hydric	ATD-D
302E			  Not prime farmland		
Dillingham		4a		Not hydric	ATD-D
Kalkaska		5a		Not hydric	ATD-D
302F			  Not prime farmland		
Dillingham		4a		Not hydric	ATD-D
Kalkaska		5a		Not hydric	ATD-D
303B			Prime farmland		
Kiva		4a		Not hydric	AVO
Trenary		3a		Not hydric	AVO/ATD
303D	3e		Prime farmland		
Kiva		4a		Not hydric	AVO
Trenary		3a		Not hydric	AVO/ATD
303E	7e		Not prime farmland		
Kiva		4a		Not hydric	AVO
Trenary		3a		Not hydric	AVO/ATD
305B	4w		Not prime farmland		İ
Wurtsmith		5a		Not hydric	PVC
Meehan		5b		Not hydric	TMC-V
306C	!		Not prime farmland		į
Deerton, dissected		4/Ra	!	Not hydric	ATD-D
Tokiahok, dissected		4a-af	!	Not hydric	ATD-D
Jeske, dissected		Rbc		Not hydric	TMC
307B	6s	5.3a	Not prime farmland	Not hydric	QAE
Rubicon, very deep water table					
307D		F 2-	 	Not beduin	
Rubicon, very deep water	!	5.3a	Not prime farmland	Not hydric	QAE
table					
308B			Not prime farmland		
Rubicon		5.3a		Not hydric	AQV
Sultz	į į	5a	į	Not hydric	AQV
308D	   6s		Not prime farmland		
Rubicon	į į	5.3a	-	Not hydric	AQV
Sultz	į į	4/2a	į į	Not hydric	AQV
309B Rubicon, deep water table	6s     6	5.3a	Not prime farmland	Not hydric	   QAE 
	į į				į
309D Rubicon, deep water table	7s   	5.3a	Not prime farmland  	Not hydric	QAE   

Interpretive Groups--Continued

Map symbol and soil name	  Land capability   classification   	Michigan soil management group	Prime   farmland   category	Hydric soil status	Habitat type   (primary/   secondary)
310B Kalkaska, burned	   4s   	5a	  Not prime farmland	Not hydric	TMV/TM
310D Kalkaska, burned	   6s   	5a	Not prime farmland	Not hydric	TMV/TM
310D Kalkaska, burned		5a	Not prime farmland	Not hydric	TMV/TM
311B Kalkaska, very deep water table, burned	4s           	5a	Not prime farmland	Not hydric	ATD-D
311D Kalkaska, very deep water table, burned	   6s   	5 <b>a</b>	Not prime farmland	Not hydric	ATD-D
312B Islandlake, burned	   4s   	5a	  Not prime farmland	Not hydric	ATD-D
312DIslandlake, burned	   6s   	5a	  Not prime farmland	Not hydric	ATD-D
313B Kalkaska, deep water table, burned	   4s   	5a	Not prime farmland	Not hydric	ATD-D
314BBlue Lake, very deep water table, burned	   3s   	4a	Not prime farmland	Not hydric	ATD-D
315BBlue Lake, deep water table, burned	   3s   	4a	Not prime farmland	Not hydric	ATD-D
316BBlue Lake, burned	   3s   	4a	  Not prime farmland	Not hydric	ATD-D
316D Blue Lake, burned	   3e   	4a	  Not prime farmland 	Not hydric	ATD-D
317B Kalkaska, very deep water table	4s     4s   	5 <b>a</b>	Not prime farmland	Not hydric	ATD-D
317D Kalkaska, very deep water table	   6s   	5a	Not prime farmland	Not hydric	ATD-D
318B Islandlake, very deep water table	   4s   	5a	Not prime farmland	Not hydric	ATD-D
318DIslandlake, very deep water table	   6s   	5a	  Not prime farmland 	Not hydric	ATD-D
319B Islandlake	   4s   	5a	  Not prime farmland	Not hydric	ATD-D

# Interpretive Groups--Continued

Map symbol	Land capability	Michigan	Prime	Hydric	Habitat type
and soil name	classification	soil	farmland	soil	(primary/
		management	category	status	secondary)
		group			<u> </u>
319D Islandlake		5a	  Not prime farmland  	Not hydric	   ATD-D 
19E Islandlake	   6e   	5a	  Not prime farmland	Not hydric	ATD
319F Islandlake	   7e   	5a	Not prime farmland	Not hydric	ATD
20B Kalkaska, deep water table	4s	5a	Not prime farmland	Not hydric	ATD-D
21B	4s		  Not prime farmland		
Kalkaska	į į	5a	İ	Not hydric	ATD-D
Deerton		4/Ra		Not hydric	ATD-D
321D	   6s		  Not prime farmland		
Kalkaska	į į	5a	į į	Not hydric	ATD-D
Deerton	į į	4/Ra	i i	Not hydric	ATD-D

<sup>\*</sup> Where drained.

# **Accessibility Statement**

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# **Nondiscrimination Statement**

# **Nondiscrimination Policy**

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## To File a Program Complaint

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at <a href="http://www.ascr.usda.gov/complaint\_filing\_cust.html">http://www.ascr.usda.gov/complaint\_filing\_cust.html</a> or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter by mail to U.S. Department of Agriculture; Director, Office of Adjudication; 1400 Independence Avenue, S.W.; Washington, D.C. 20250-9419; by fax to (202) 690-7442; or by email to <a href="mailto-program.intake@usda.gov">program.intake@usda.gov</a>.

# **Persons with Disabilities**

If you are deaf, are hard of hearing, or have speech disabilities and you wish to file either an EEO or program complaint, please contact USDA through the Federal Relay Service at (800) 877-8339 or (800) 845-6136 (in Spanish).

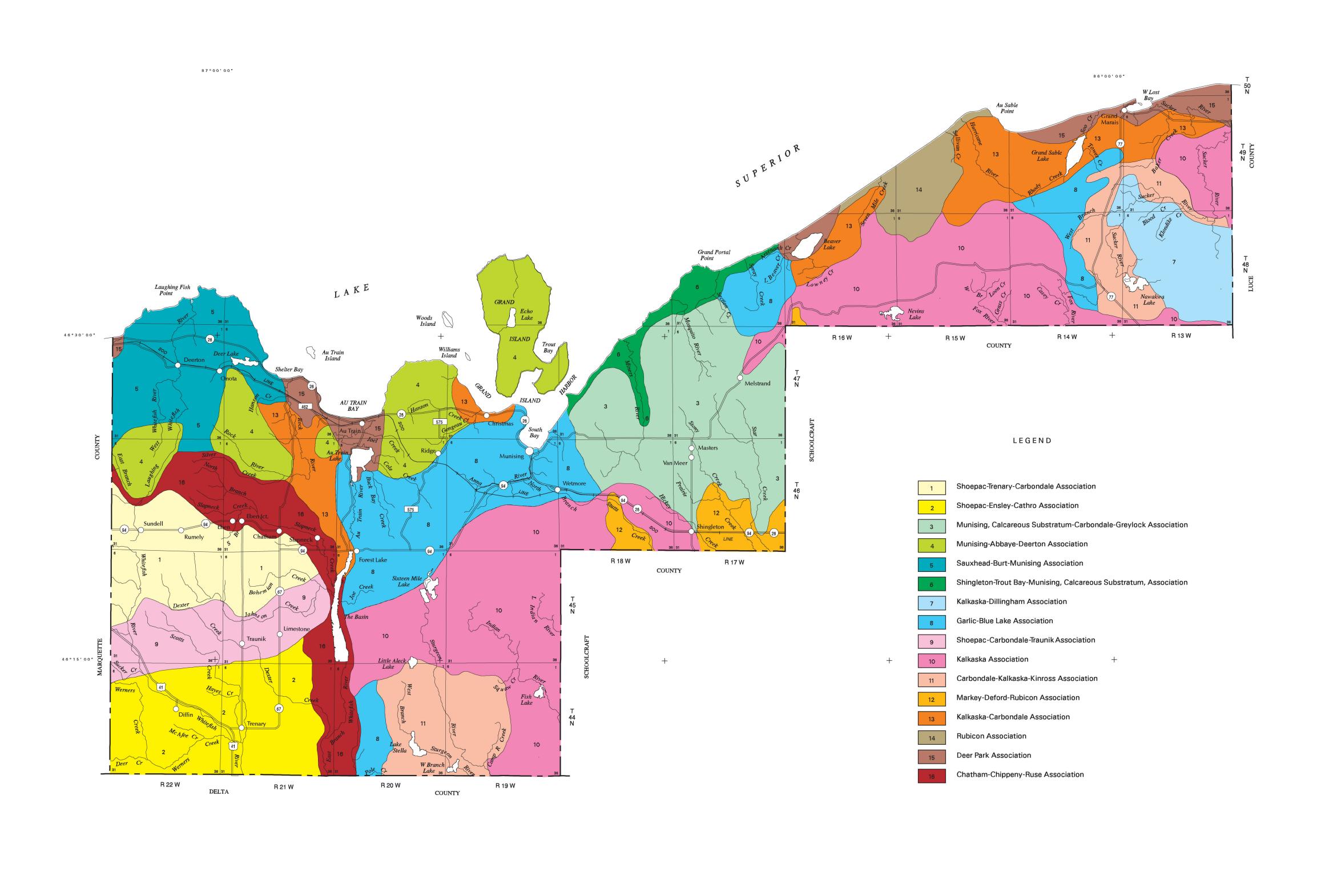
If you have other disabilities and wish to file a program complaint, please see the contact information above. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.), please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

# **Supplemental Nutrition Assistance Program**

For additional information dealing with Supplemental Nutrition Assistance Program (SNAP) issues, call either the USDA SNAP Hotline Number at (800) 221-5689, which is also in Spanish, or the State Information/Hotline Numbers (<a href="http://directives.sc.egov.usda.gov/33085.wba">http://directives.sc.egov.usda.gov/33085.wba</a>).

### All Other Inquiries

For information not pertaining to civil rights, please refer to the listing of the USDA Agencies and Offices (<a href="http://directives.sc.egov.usda.gov/33086.wba">http://directives.sc.egov.usda.gov/33086.wba</a>).



SECTIONALIZED TOWNSHIP

6 5 4 3 2 1
7 8 9 10 11 12
18 17 16 15 14 13
19 20 21 22 23 24
30 29 28 27 26 25
31 32 33 34 35 36

UNITED STATES DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE

UNITED STATES FOREST SERVICE

MICHIGAN DEPARTMENT OF AGRICULTURE

MICHIGAN AGRICULTURAL EXPERIMENT STATION

MICHIGAN STATE UNIVERSITY, COOPERATIVE EXTENSION SERVICE

MICHIGAN TECHNOLOGICAL UNIVERSITY

GENERAL SOIL MAP ALGER COUNTY, MICHIGAN

1 0 1 2 3

MILES

1 0 1 2 3 4 5 6

KILOMETERS

SCALE = 1:185000

UNITED STATES

ALGER COUNTY, MICHIGAN

DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE 46°57'30"N 46°55'0"N -46°52'30"N 46°50'0"N + -46°47'30"N 46°47'30"N 46°45'0"N 03 02 01 + -46°42'30"N Grand 46°42'30"N Au Sable Grand Sable Point Marais Lake + -46°40'0"N 46°40'0"N-+ -46°37'30"N 46°37'30"N-07 80 09 05 06 04 Au⁺Sable ® +- 46°35'0"N | Au<sup>+</sup>Sable Wood Grand Wood 46°35'0"N-Trappers Shot Nawakwa Laughing Point SE Point SW Island SE Portal Island Point Lake Lake COUNTY Fish Point Point -46°32'30"N 46°32'30"N LUCE -46°30'0"N 46°30'0"N-18 15 16 3 +--46°27'30"N Indian Rock 46°27'30"N MARQUETTE Sand Town Melstrand River Munising Au Train River 46°25'0"N -46°22'30"N 46°22'30"N COUNTY 23 19 20 21 22/ Forest 94 46°20'0"N-Ladoga Juniper Powell Shingleton Chatham Lake Lake -46°17'30"N 46°17'30"N **SCHOOLCRAFT COUNTY** 46°15'0"N-28 26 **State and National Lands** -46°12'30"N Lake<sup>+</sup> 46°12'30"N-Trenary Au Train Basin Wildlife Area Stella Tie Lake Diffin Cusino Wildlife Research Area -46°10'0"N 46°10'0"N Escanaba River State Forest Hiawatha National Forest -46°7'30"N DELTA Lake Superior State Forest COUNTY Laughing Whitefish Scenic Site Pictured Rocks National Lakeshore Wagner Falls Scenic Site -46°2'30"N -45°57'30"N -45°55'0"N 45°55'0"N 87°7'30"W 87°5'0"W 87°2'30"W 86°57'30"W 86°5 ALGER COUNTY, MICHIGAN North American Datum of 1983 (NAD83). Universal Transverse Mercator (UTM) coordinate system.

0 1 2 4 6 8 10

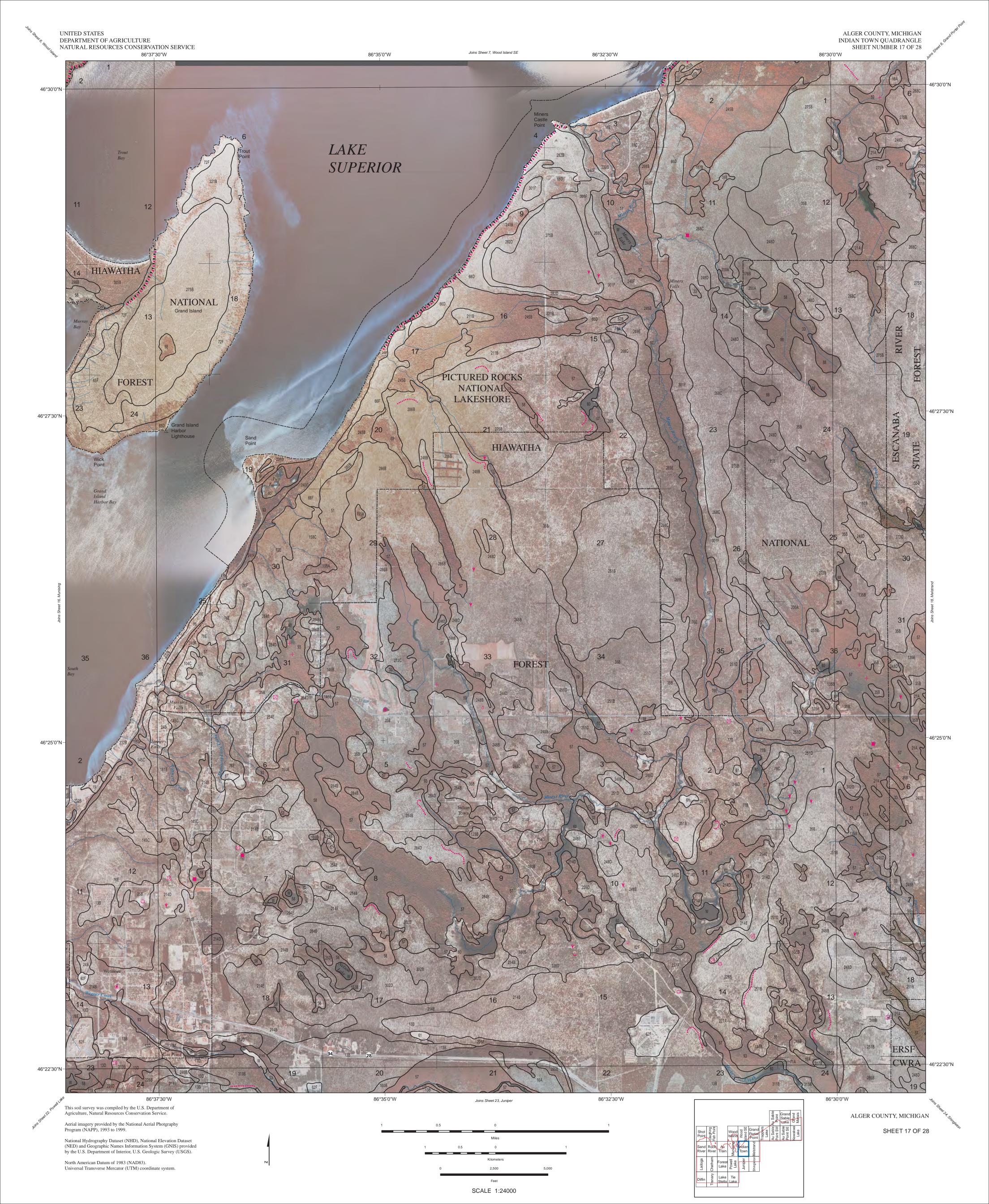
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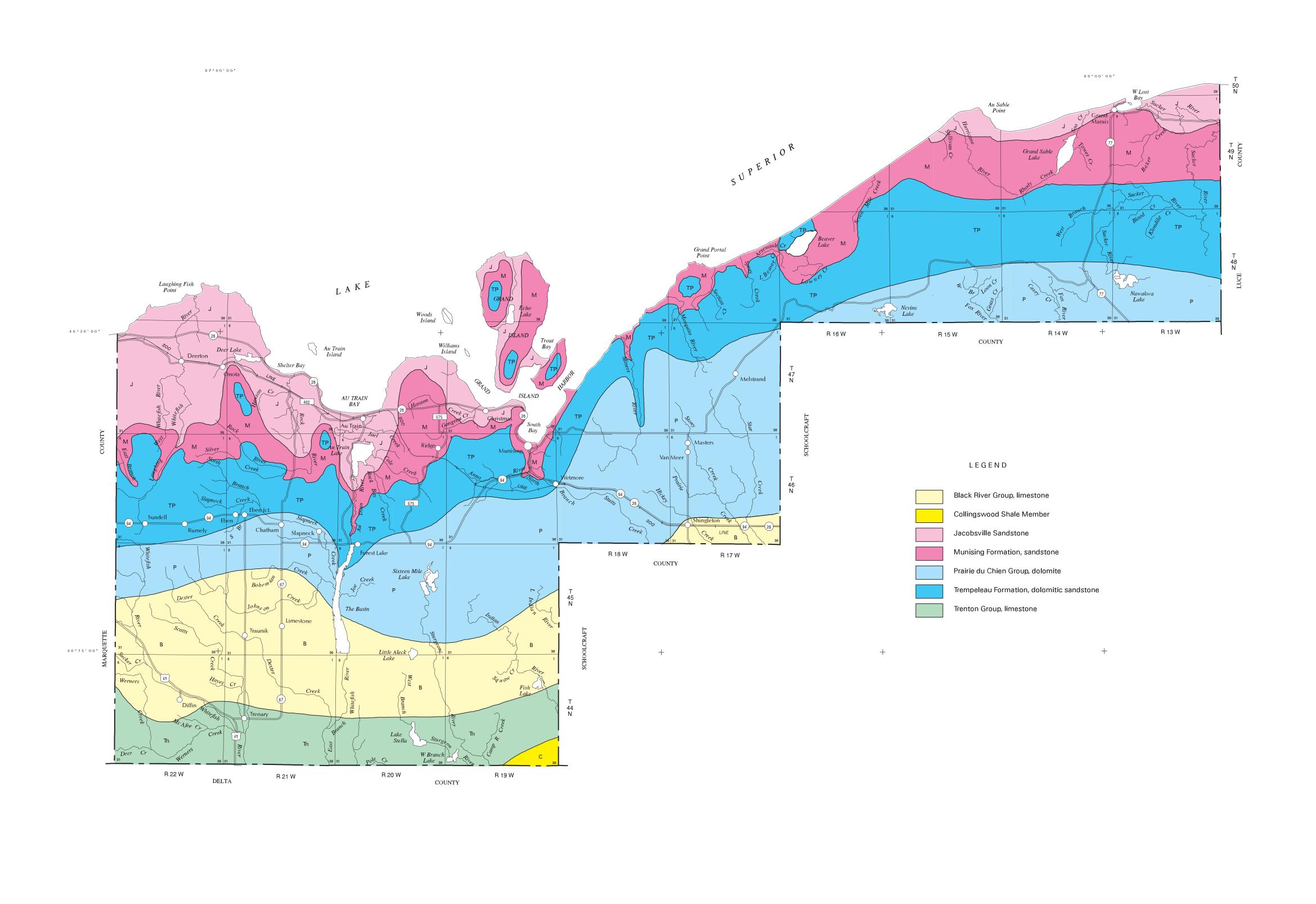


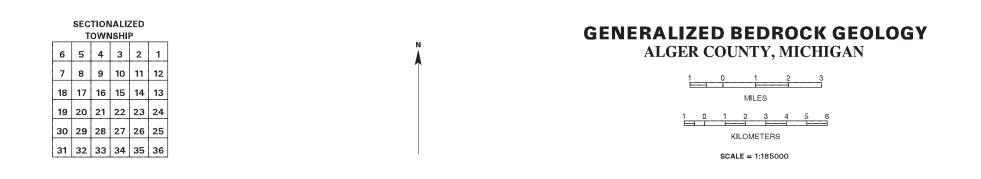


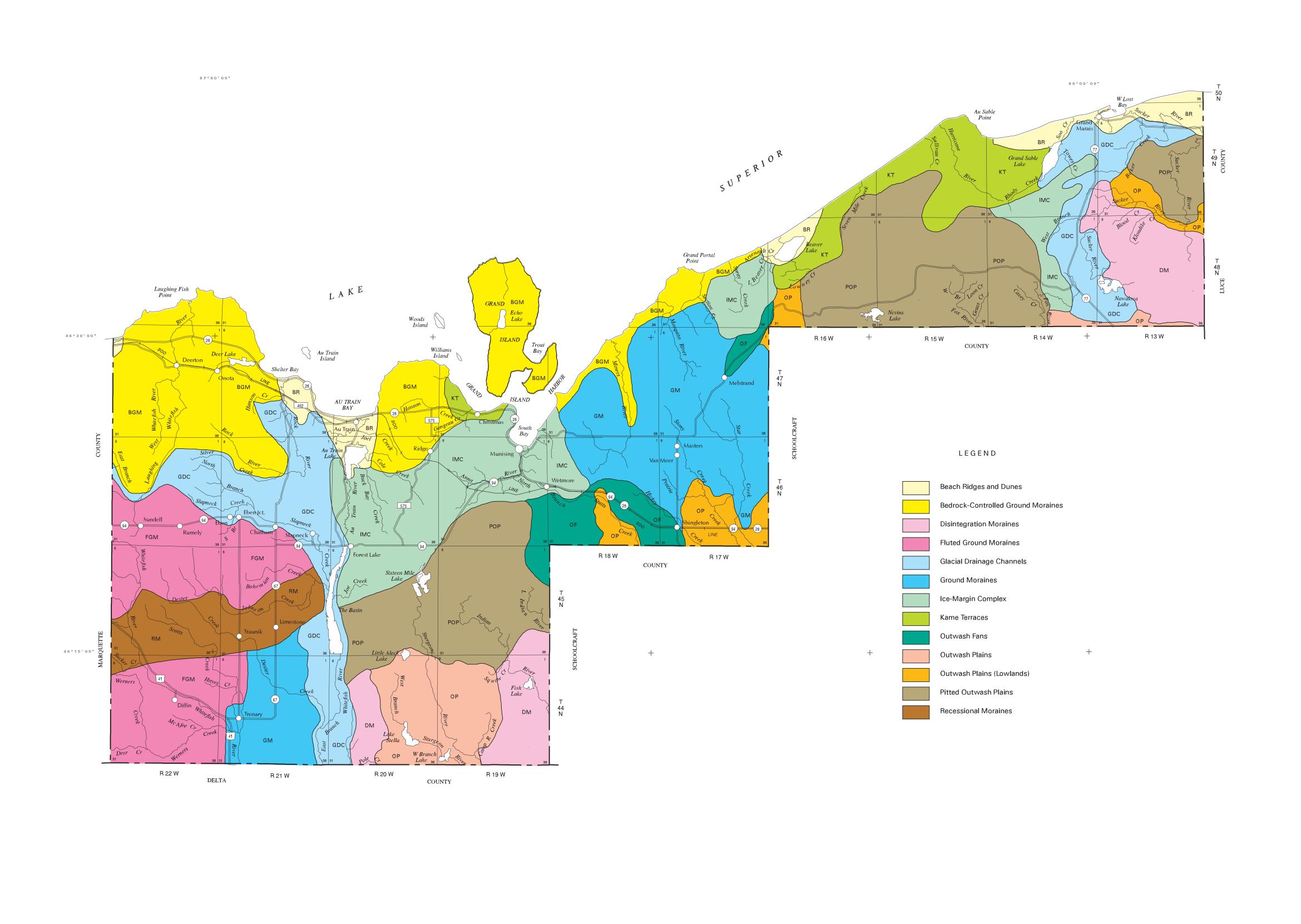


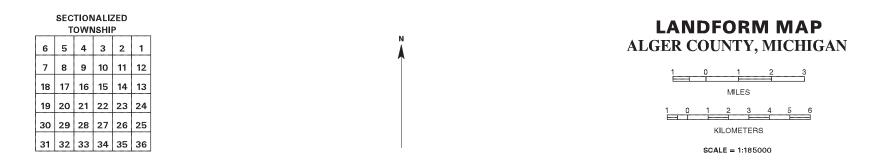












# ALGER COUNTY, MICHIGAN SOIL LEGEND

Map symbols consist of numbers or a combination of numbers and letters. The initial numbers represent the kind of these numbers indicates the class of slope. Symbols without a letter indicating slope class are for nearly level soils or

ш		
NAME 1468 1478 1488 1554 1554 1568 1608 1618 165 167 1708 1718 1720 1720	181E 185B 186B 186B 187B 188B 188B 197B 197B 200A 200B 200B 201B 214B 214B 214B 214B 225B 225B 225B 225B 225B 225B 225B 22	2.54A 2.35B 2.36B 2.36B 2.37B 2.40F 2.42B 2.42B 2.42B 2.45B 2.46B 2.26B
Σ	ercent slopes percent slopes slopes slopes slopes scalcareous substratum, 1 to 6 6 percent slopes o 35 percent slopes cent slopes percent slopes percent slopes percent slopes percent slopes percent slopes of percent slopes control slopes percent slopes percent slopes percent slopes control	

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE LEGEND SYMBOL SOIL SURVEY ANDFEATURE SSAID: MIDO3 Soil Survey Area: Alger County NRCS-S01-37A REVISED MAY 2001

LABEL 37A-ID SYMBOL AD HOC FEATURES (Describe on back) Deter October 3, 2007 BnB So W MdA × • × ÷ # SOIL SURVEY FEATURES SYMBOL 20 22 9 2 亨 **6**0 8 ΨDA 8 Moderate Bedrock MDB SOIL DELINEATIONS AND LABELS Well Drained Area DESCRIPTION Organic Spot Loamy Spot Muck Spot NAME 8 ESB AMMANAMAN ESO AMMANAMAN SYMBOL HYDROGRAPHIC FEATURES STANDARD LANDFORM AND MISCELLANEOUS SURFACE FEATURES SOIL SURVEY FEATURES 0 🛊 6 δ SPO VET SLP GP GRA LOF STV WAT SAN MIS 5 BPI Drainage and DEND (indicates direction of flow) Intermittent stream INDR PSDR - 1100 SPRN Miscellaneous water Short steep slope ESCARPMENTS Bedrock Non-bedrock Very stony spot Marsh or swamp Perennial water DESCRIPTION Perennal drainage or irrigetion ditch Perennial stream Gravelly spot Rock outcrop Stony spot Sendy spot Borrow pit Sport area Gravel pit Wet spot Lendfill Spring scr L ユ ナ ナ 8 B B SYMBOL ₩ Minor civil division CIVB - - -CULTURAL FEATURES --- xxxx | | | | NFOR --SPAR --NPAR --PUBLIC LAND SURVEY SYSTEM SFOR --SLABXX UD SO FXX SXXX rench CXXX Section Boundary LXXX -Ā LIM NEAT Limit of soil survey (label) and/or denied access areas Field sheet metchline & neetline Section Corner Tics National Forest County or parish LOCATED OBJECTS Section Label Notional, state, or province National Park State Forest **TRANSPORTATION** DESCRIPTION Prominent Peak or Hill veloped by the Michigan State Park ROAD EMBLEMS RESERVATION County, form BOUNDARIES Other road State: Michigan Federal State

# Alger Count

L			
Ë	Label	Name	Descrip
B(	B0G	Bog	Waterlogg closed dep
BPI	_	Borrow pit	An open ex
ES	ESB	Escarpment,	A relatively
ŭ	001	bedrock	the genera
]	2	nonbedrock	produced k
			material is
GPI	_	Gravel pit	An open ex crushing, a
5	GRA	Gravelly spot	A spot whe
	ų	, so of fill	less than 3
7	<u> </u>	Landilli	An area or ground lev
7	LOA	Loamy spot	Areas of lo
Σ	MAR	Marsh or swamp	A water sa
			cattails, an where the
Σ	MDB	Moderately	Areas whe
		Deep Bedrock	=
Σ	SIN.	Miscellaneous	Small, cons
Σ	MUC	Muck Spot	An area of
			acres.
ō	ORG	Organic spot	Non-acid a
	JU	Bock outrop	An exposur
	3		surroundin
			map unit.
S/	SAN	Sandy spot	A spot whe
7	c		named soil
<u> </u>	<b>ب</b>	snort, steep slone	Narrow sol
S	SPO	Spoil area	A pile of ea
			acres.
ST	STN	Stony spot	A spot whe
			in diamete
STS	>	Very stony spot	A spot whe diameter w
			Typically 1
<u></u>	WAT	Perennial water	Small, natu acres.
<u>&gt;</u>	WDA	Well Drained	An area of
_ ≥	WET	Wet spot	A somewha
	I		than the na